

FIG. 1A
PRIOR ART

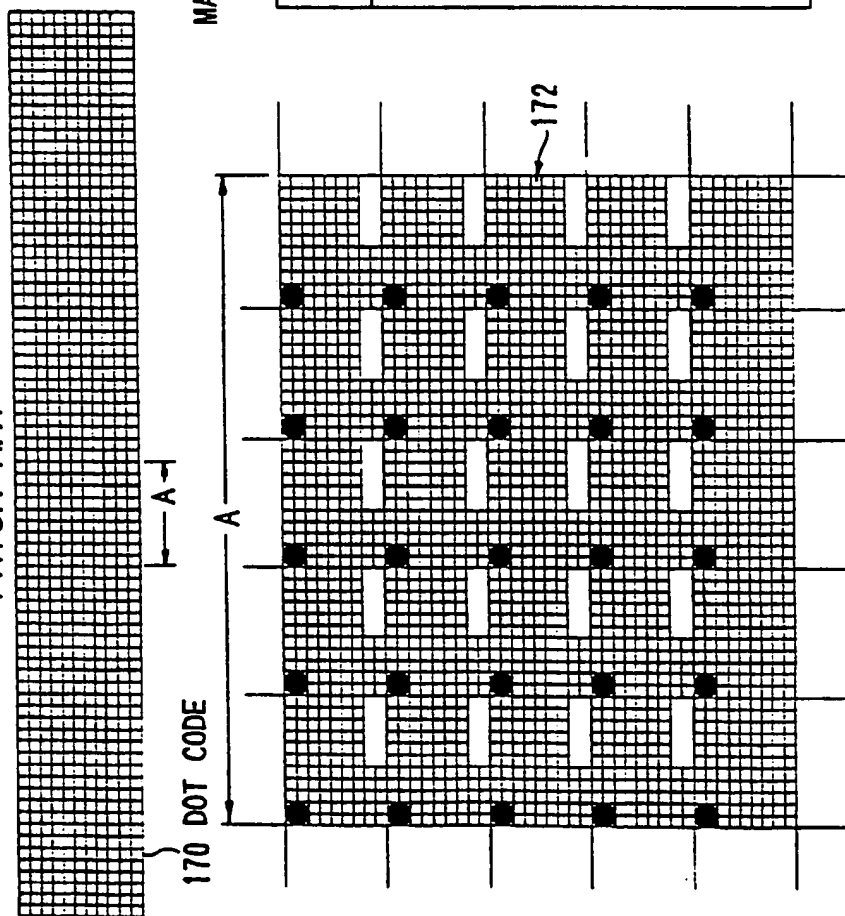


FIG. 1B
PRIOR ART

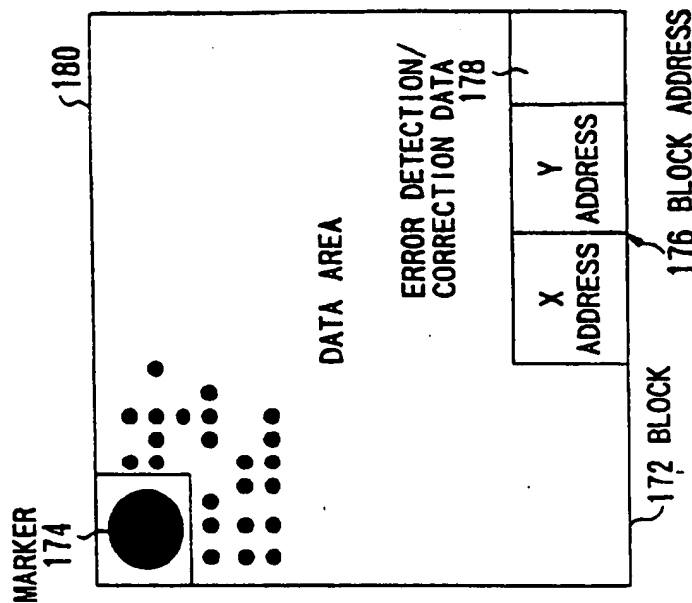


FIG. 1C
PRIOR ART



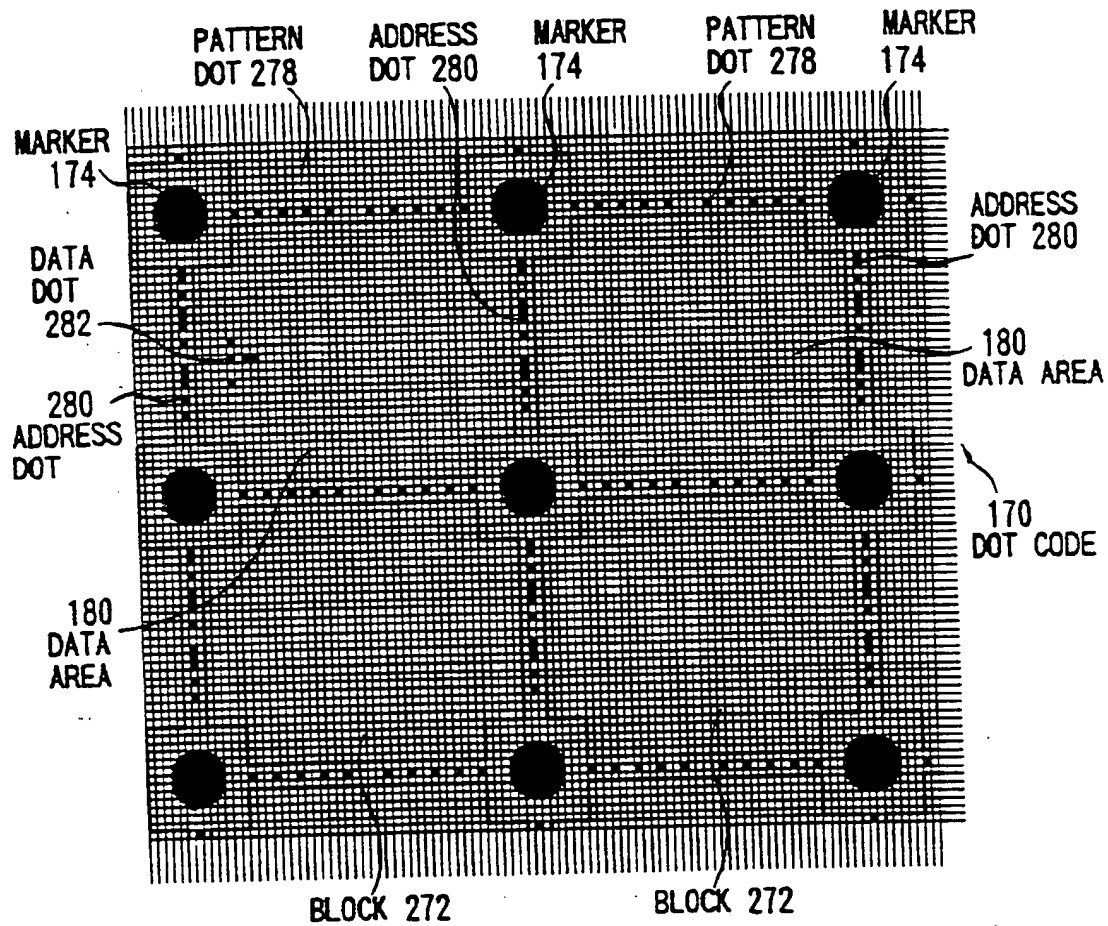


FIG. 3

PRIOR ART

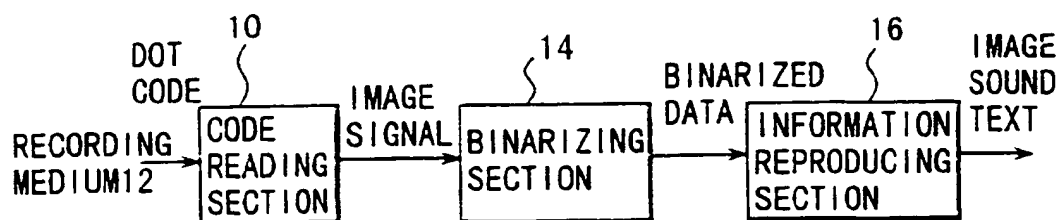


FIG. 4A

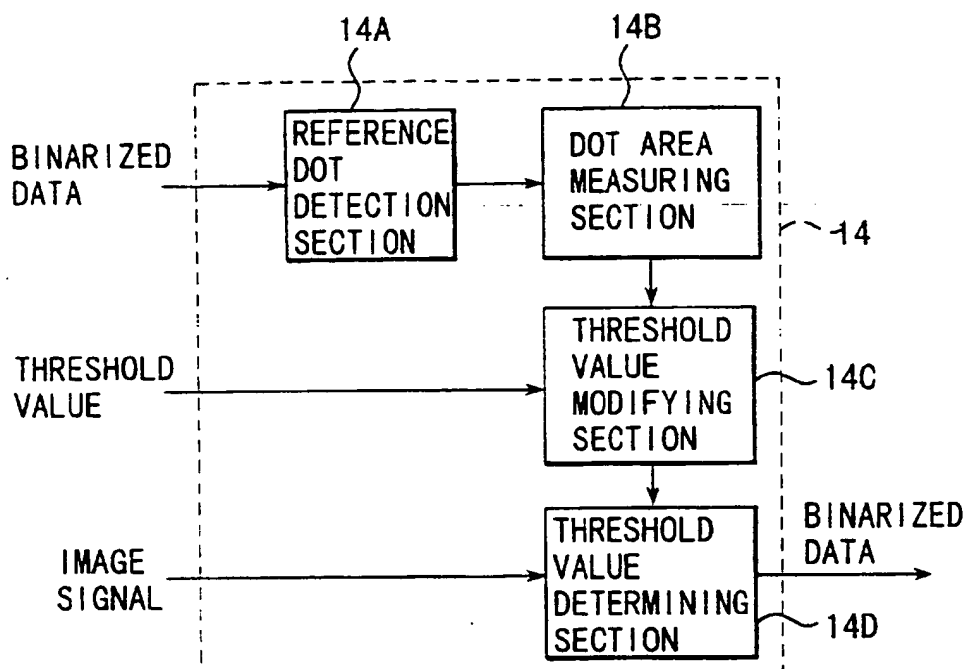


FIG. 4B

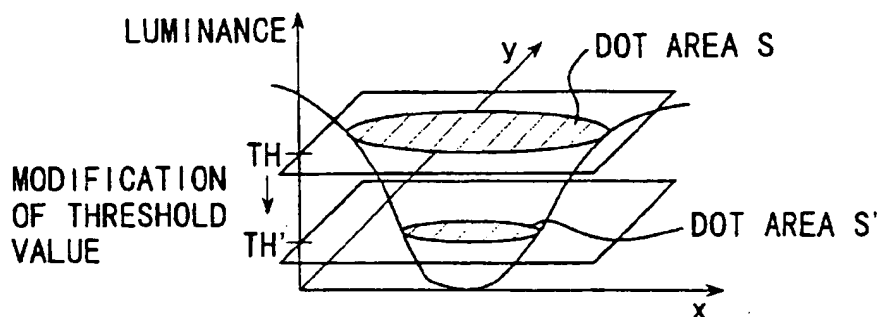


FIG. 5

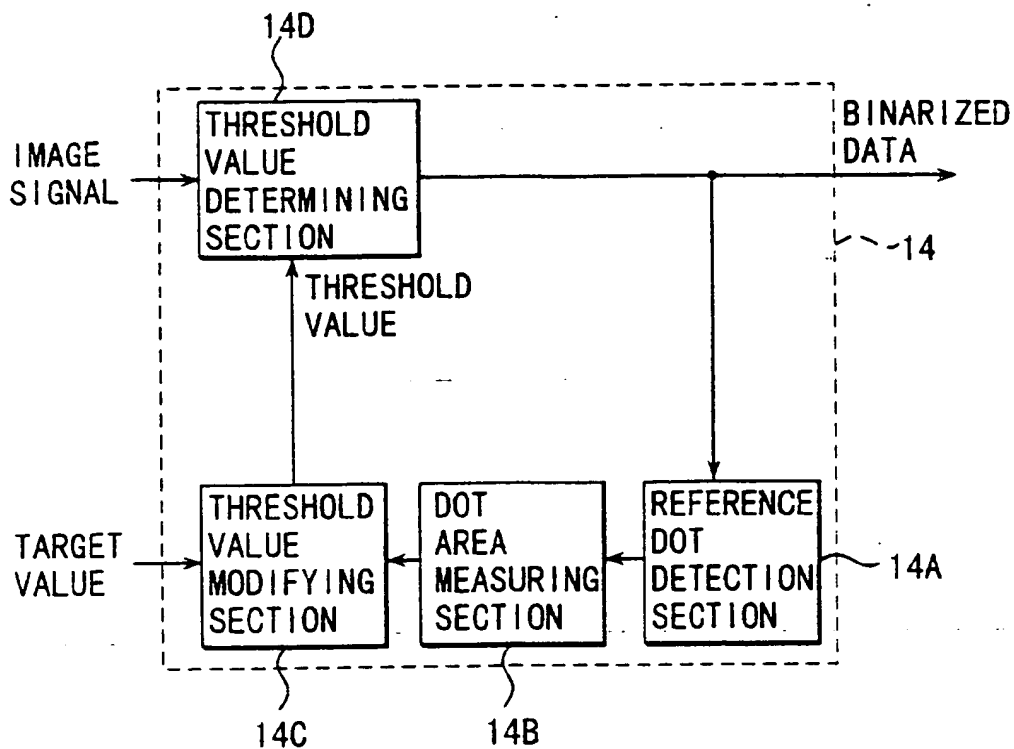


FIG. 6A

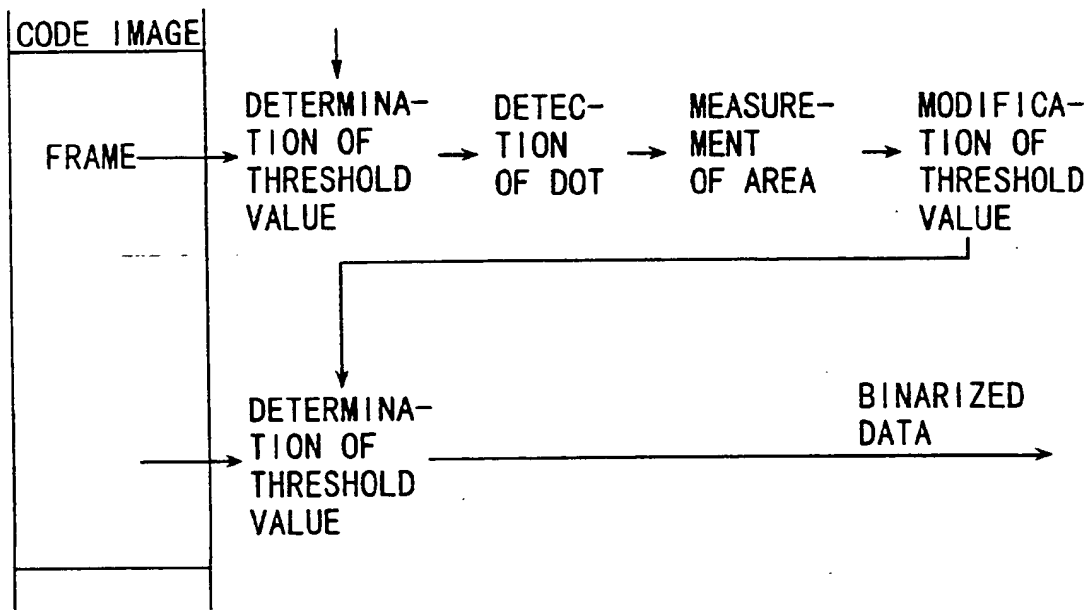


FIG. 6B

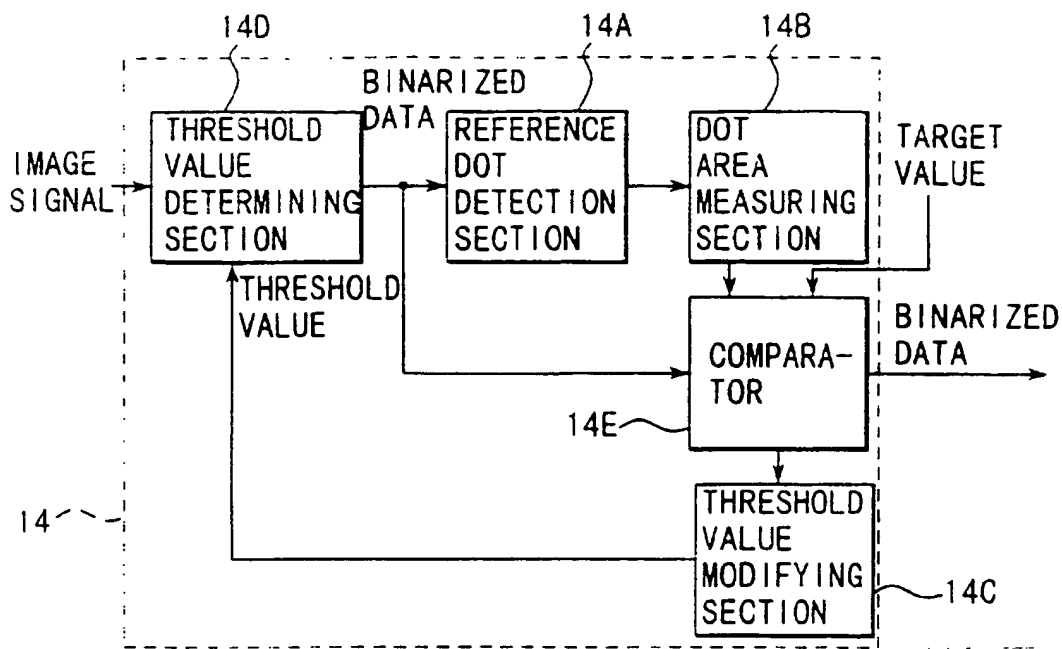


FIG. 7

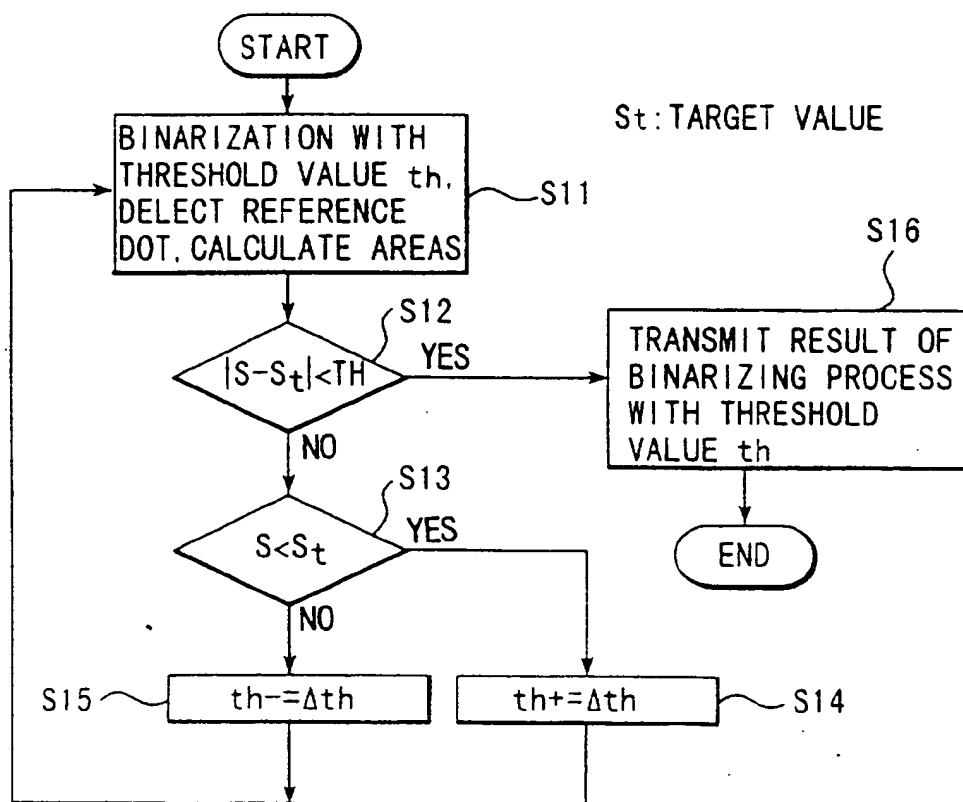


FIG. 8

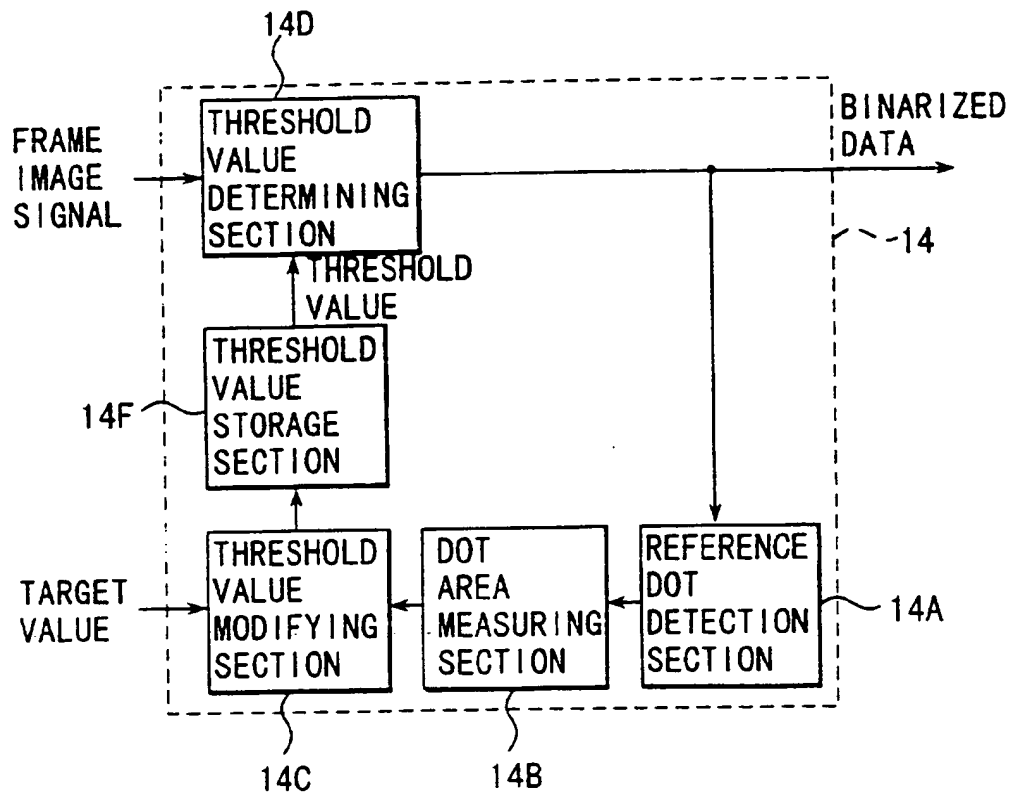


FIG. 9A

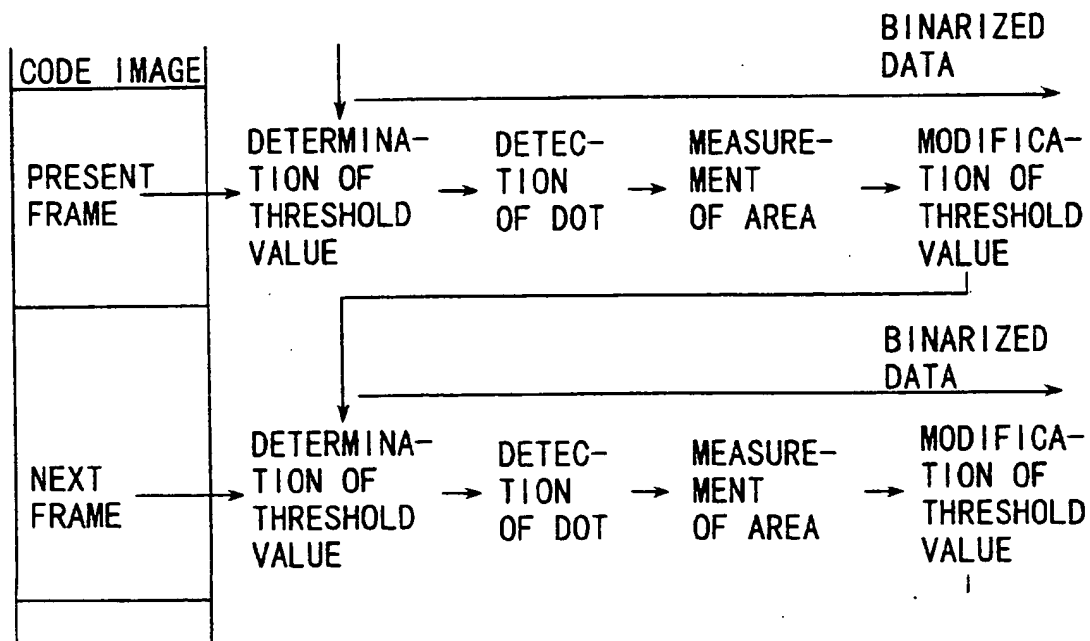


FIG. 9B

FIG. 10A

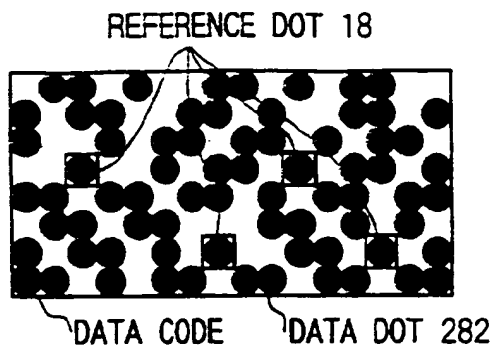


FIG. 10B

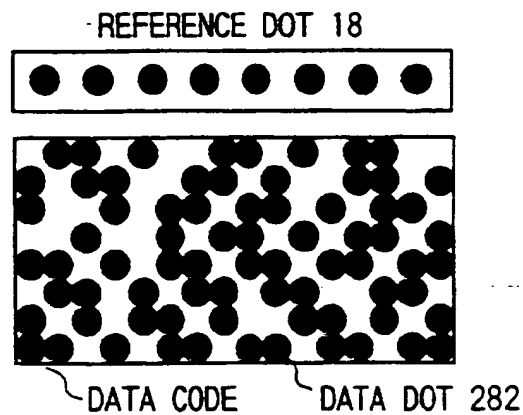


FIG. 11A

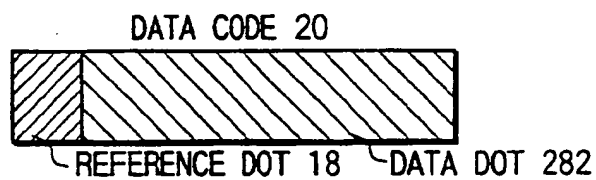


FIG. 11B

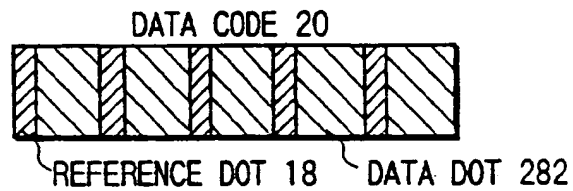
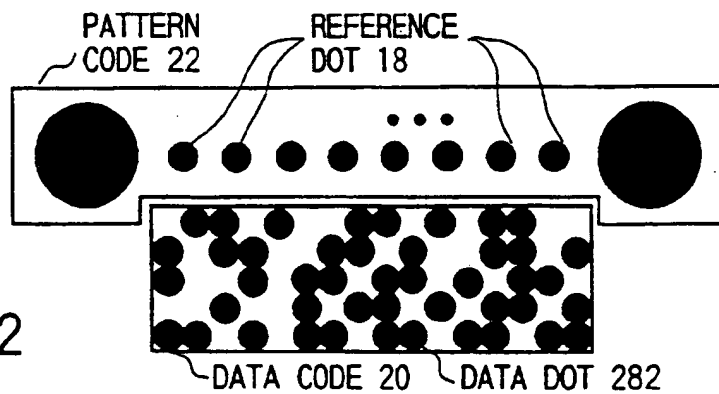


FIG. 12



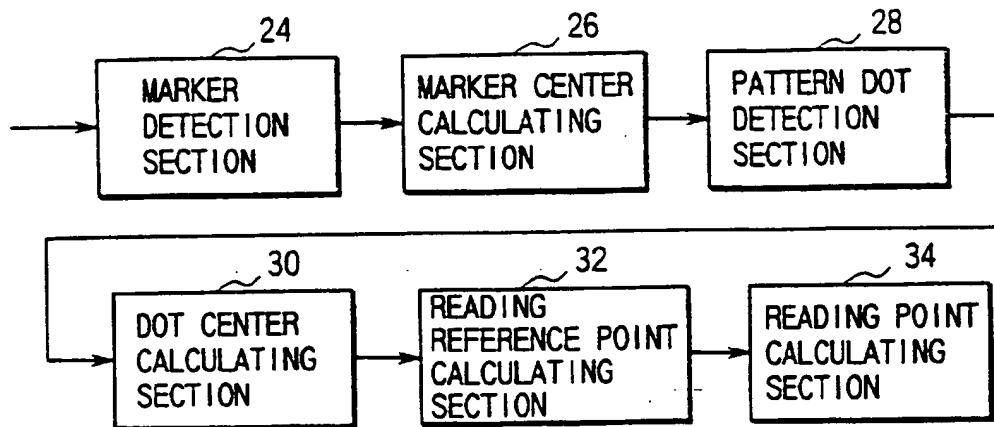


FIG. 13

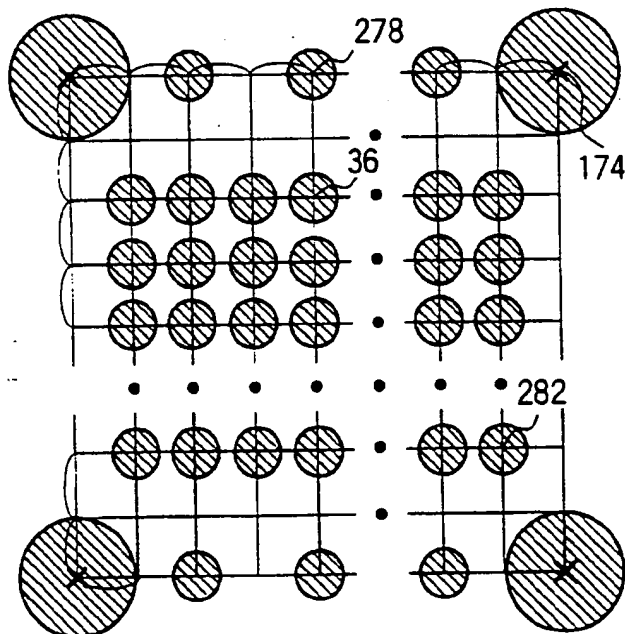


FIG. 14

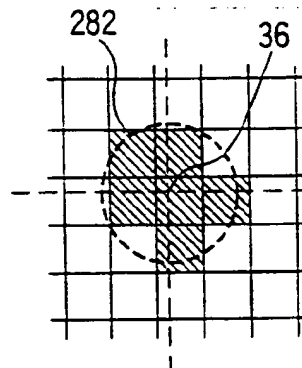
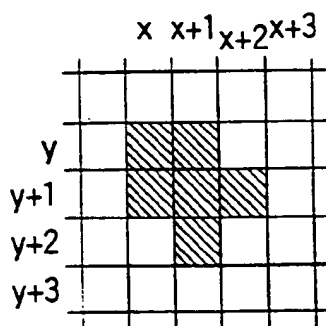


FIG. 15



BLACK PIXEL: $P_1(x, y), P_2(x+1, y), P_3(x, y+1),$
 $P_4(x+1, y+1), P_5(x+2, y+1),$
 $P_6(x+1, y+2)$

AREA(=TOTAL SUM OF BLACK PIXELS): 6

CENTROID:

$$C = \frac{1}{6} \sum_{n=1}^6 P_n = (x + \frac{5}{6}, y + \frac{5}{6})$$

FIG. 16

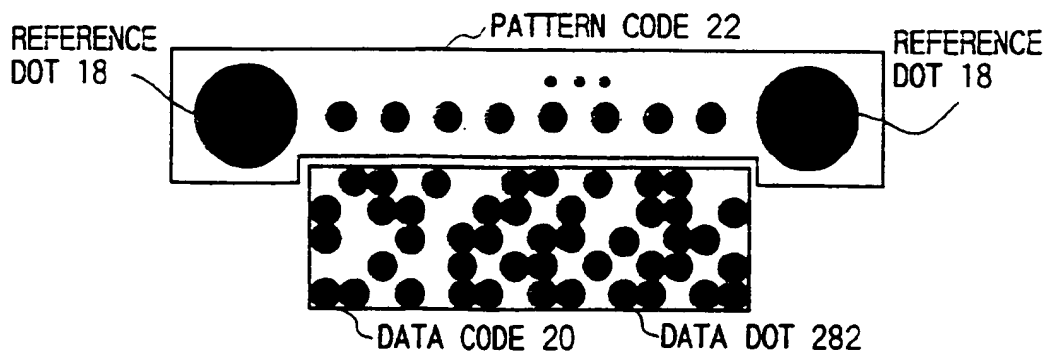


FIG. 17

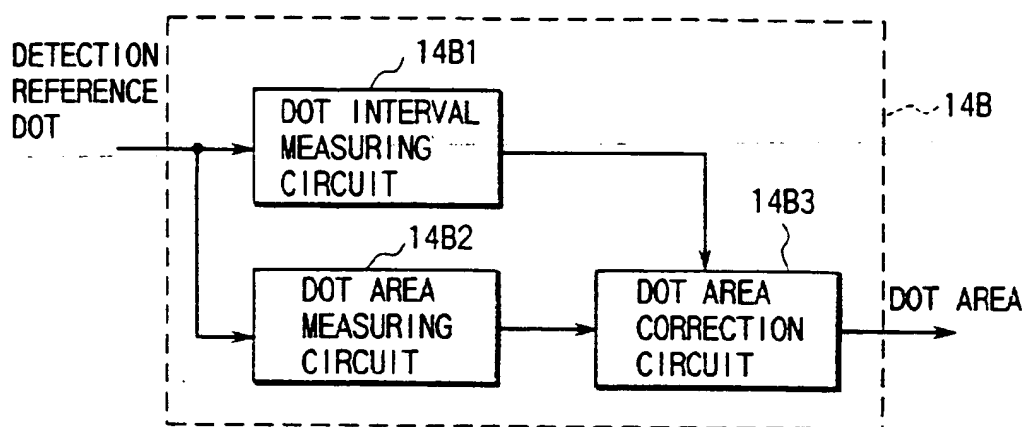
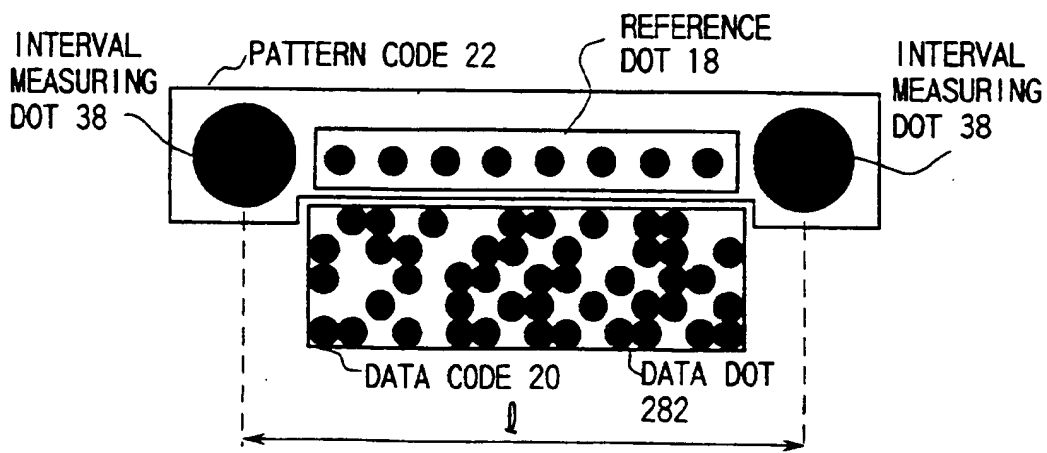


FIG. 18



$$S' = \left(\frac{I}{L}\right)^2 S$$

S: AREA BEFORE CORRECTION I: DOT INTERVAL

S': AREA AFTER CORRECTION L: REFERENCE DOT INTERVAL

FIG. 19

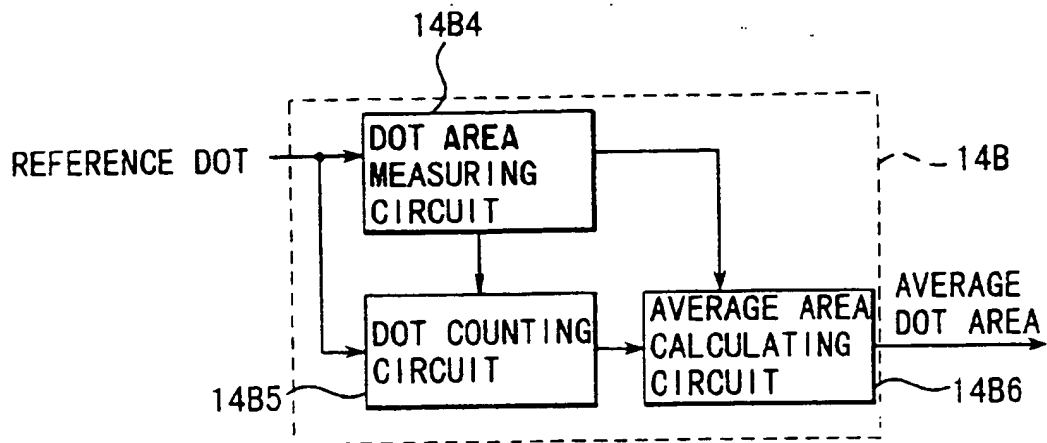


FIG. 20

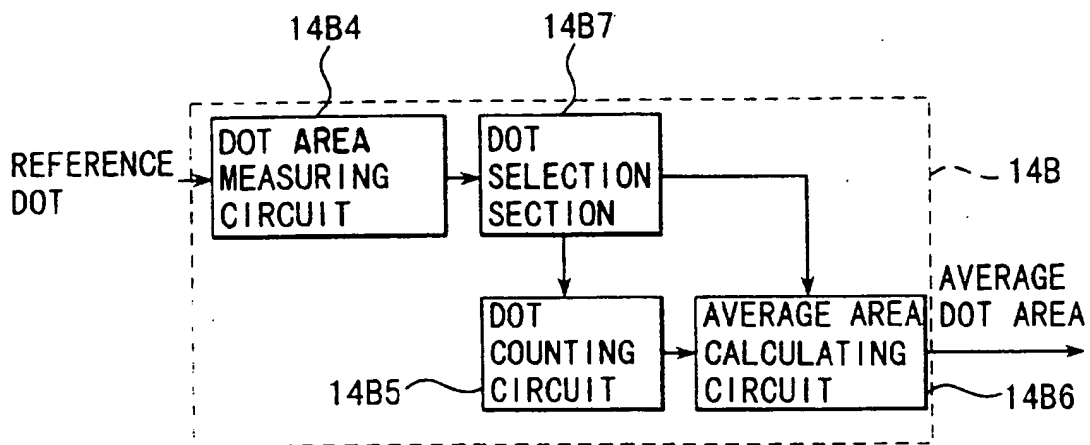


FIG. 21

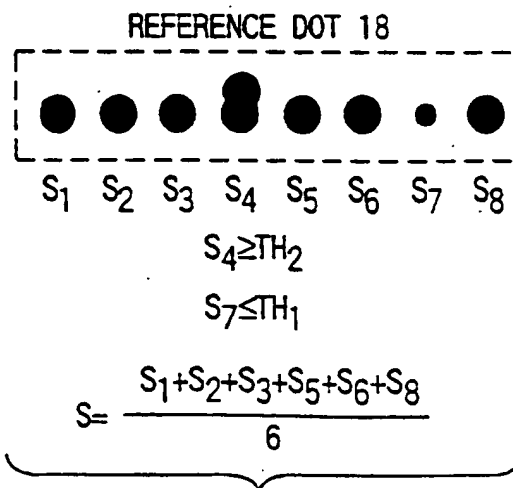
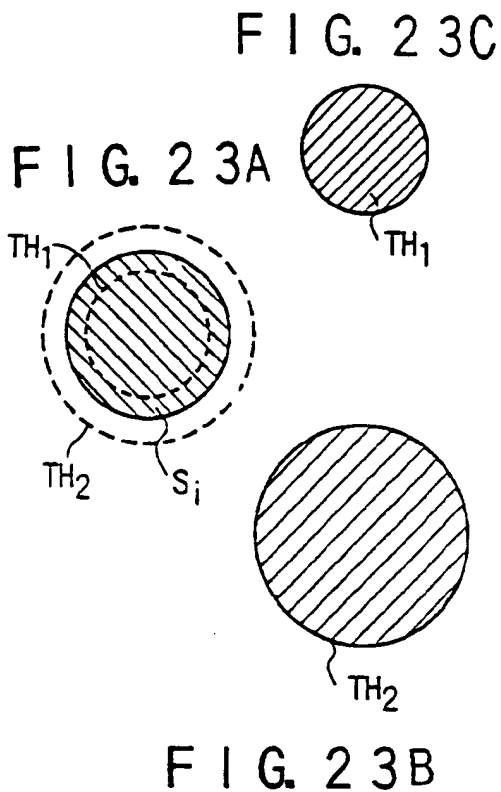
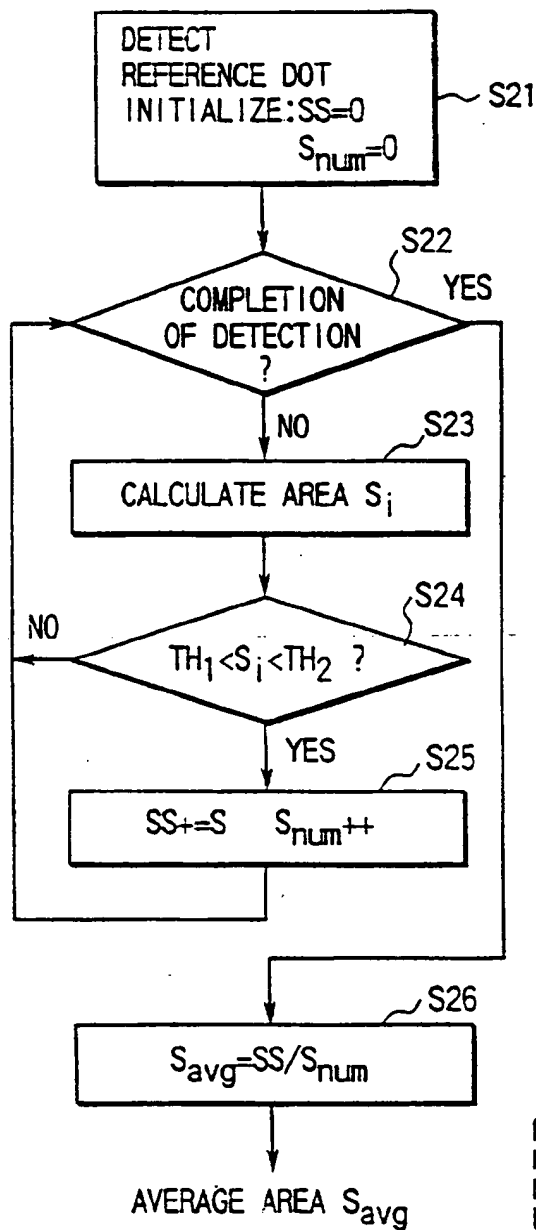


FIG. 24

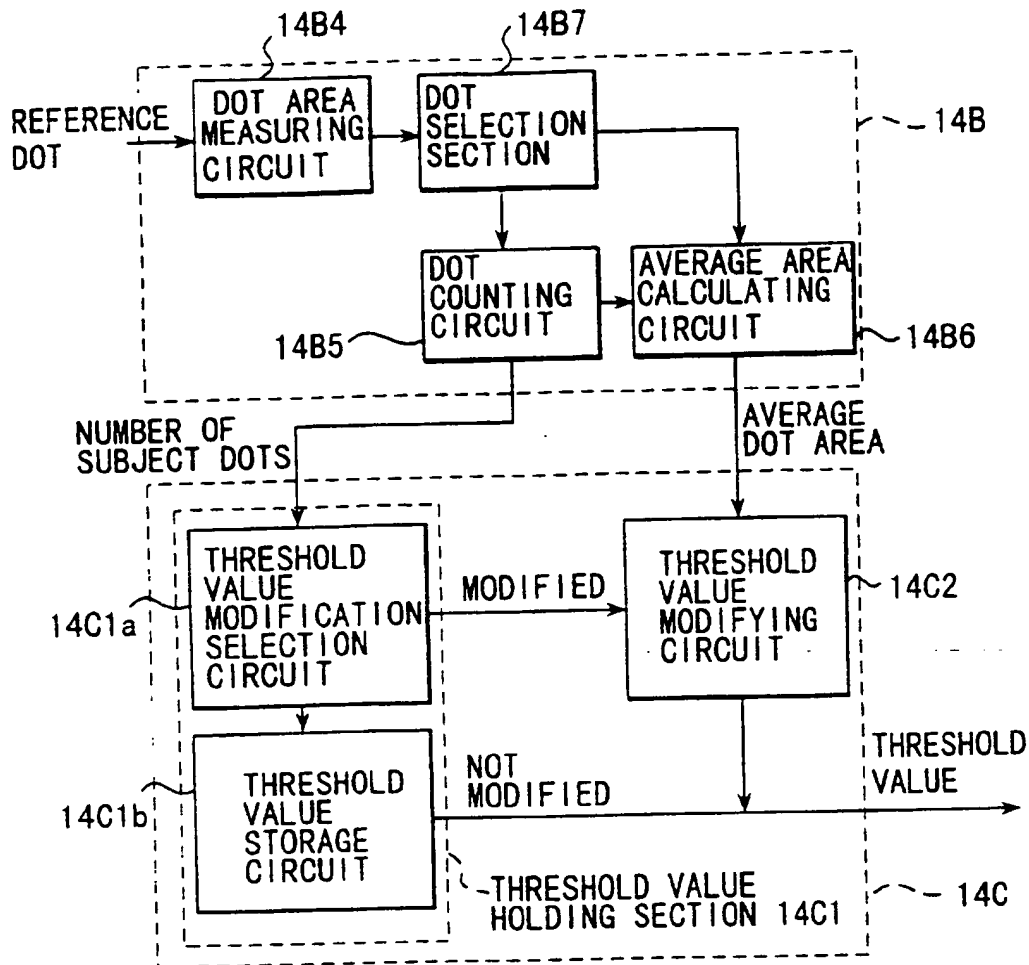


FIG. 25

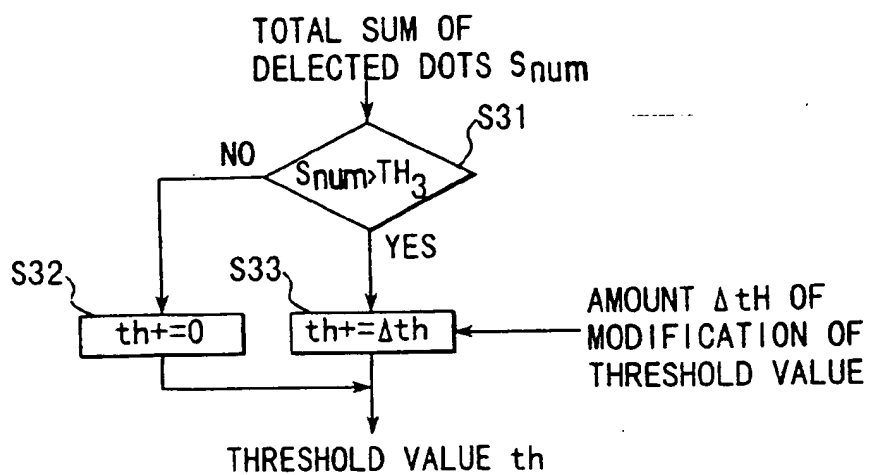


FIG. 26

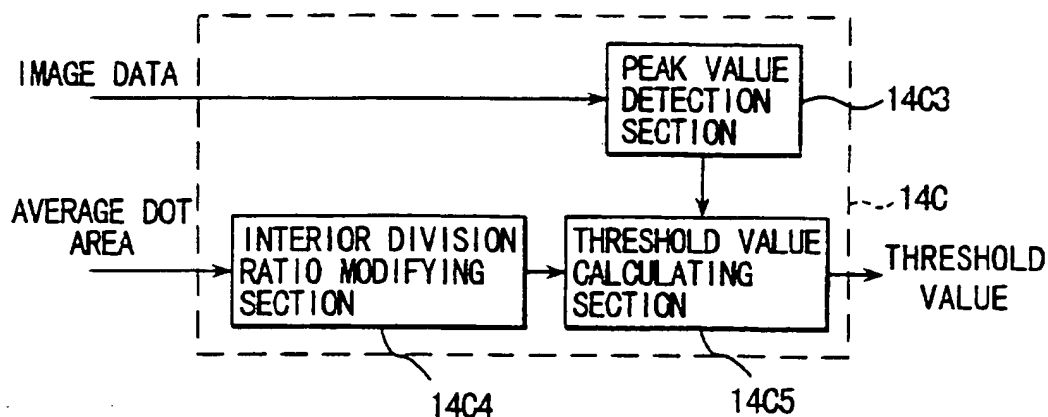


FIG. 27

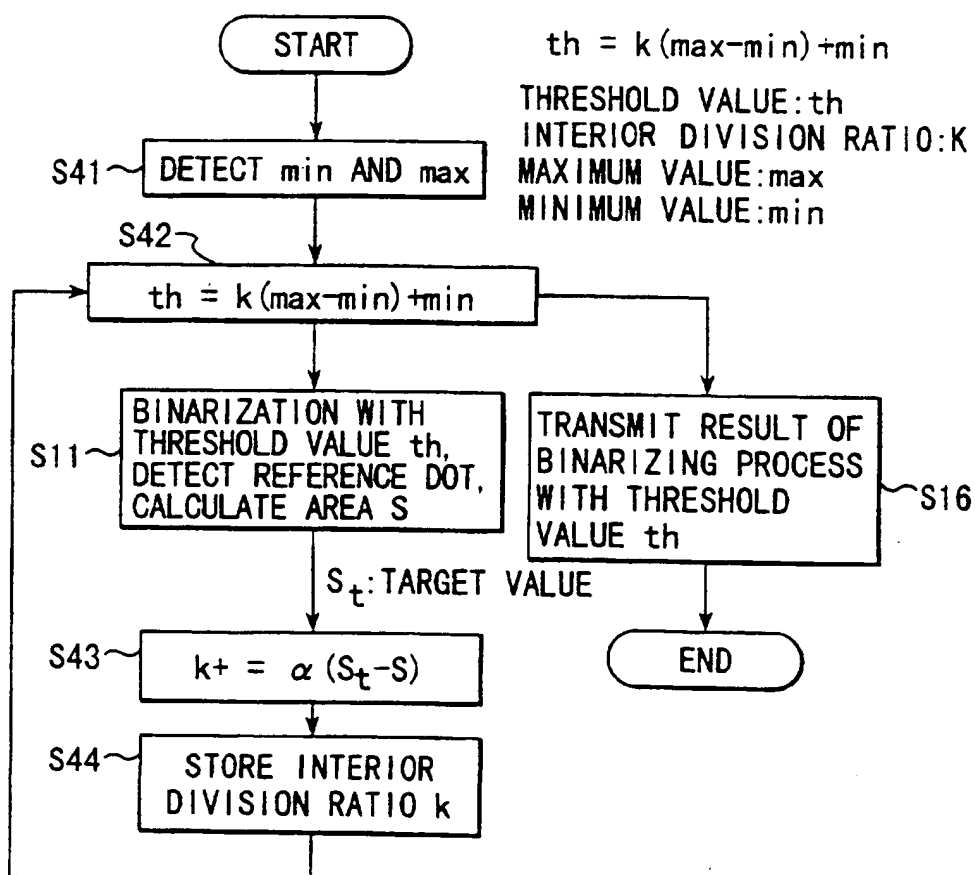


FIG. 28

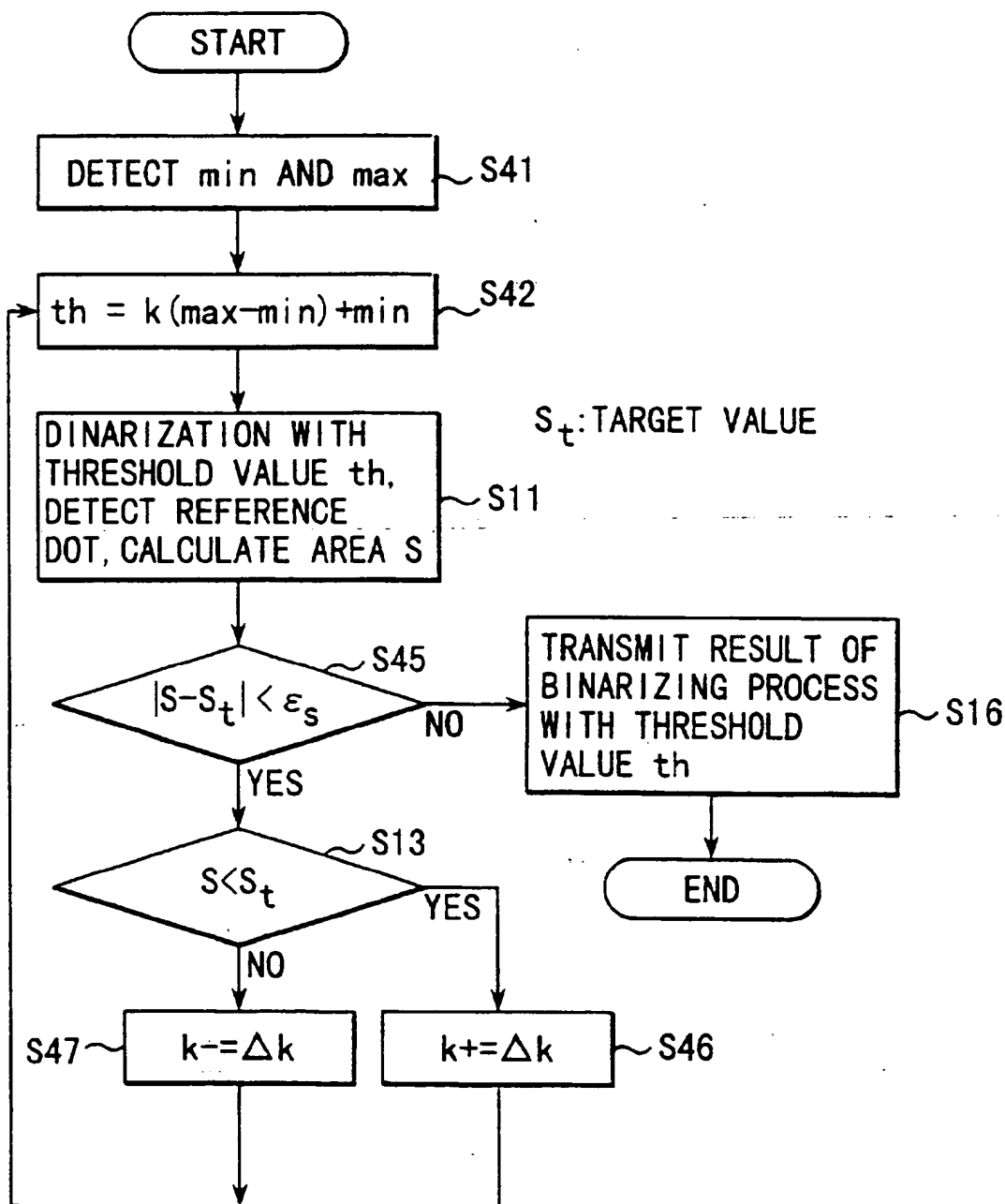
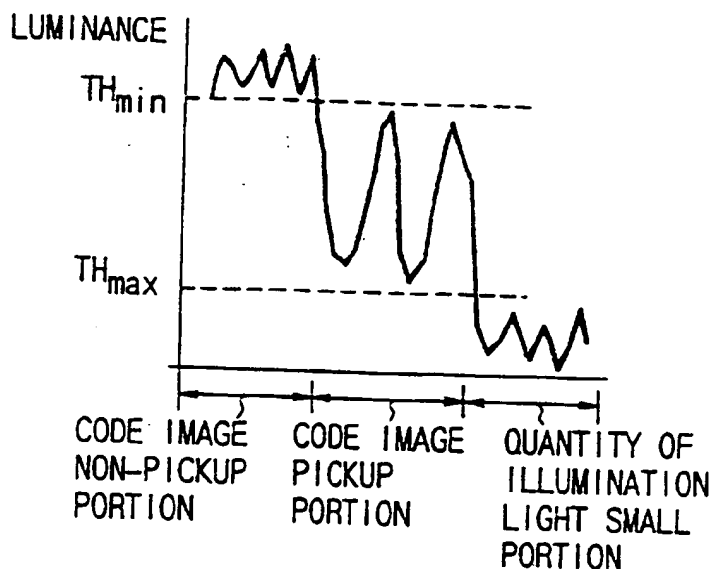


FIG. 29

FIG. 30



WHEN BLANK FRAME IS
DETECTED AFTER CODE
HAS BEEN PICKED UP,
PROCESS IS COMPLETED

FIG. 31

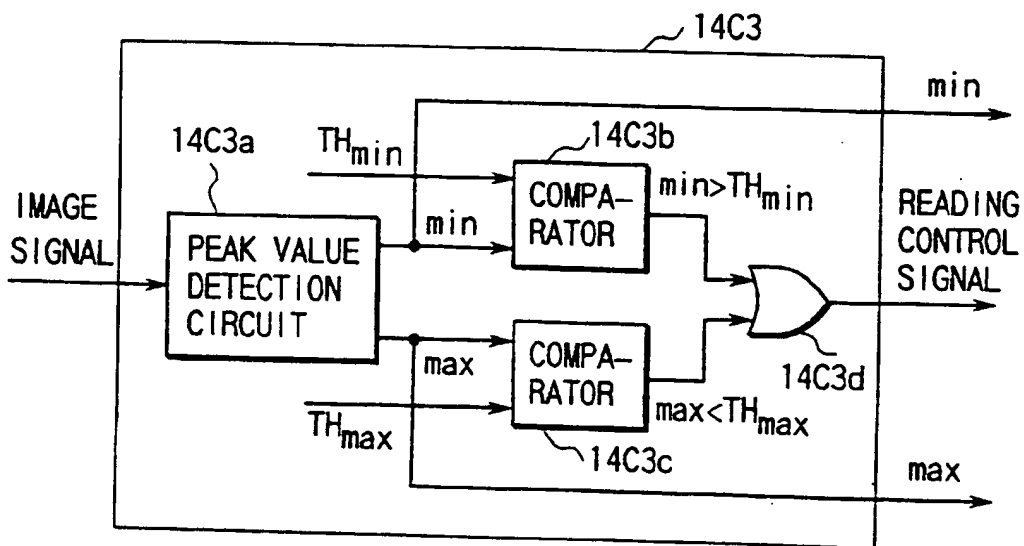
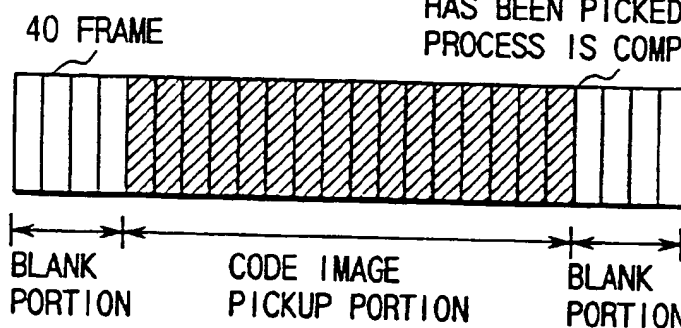


FIG. 32

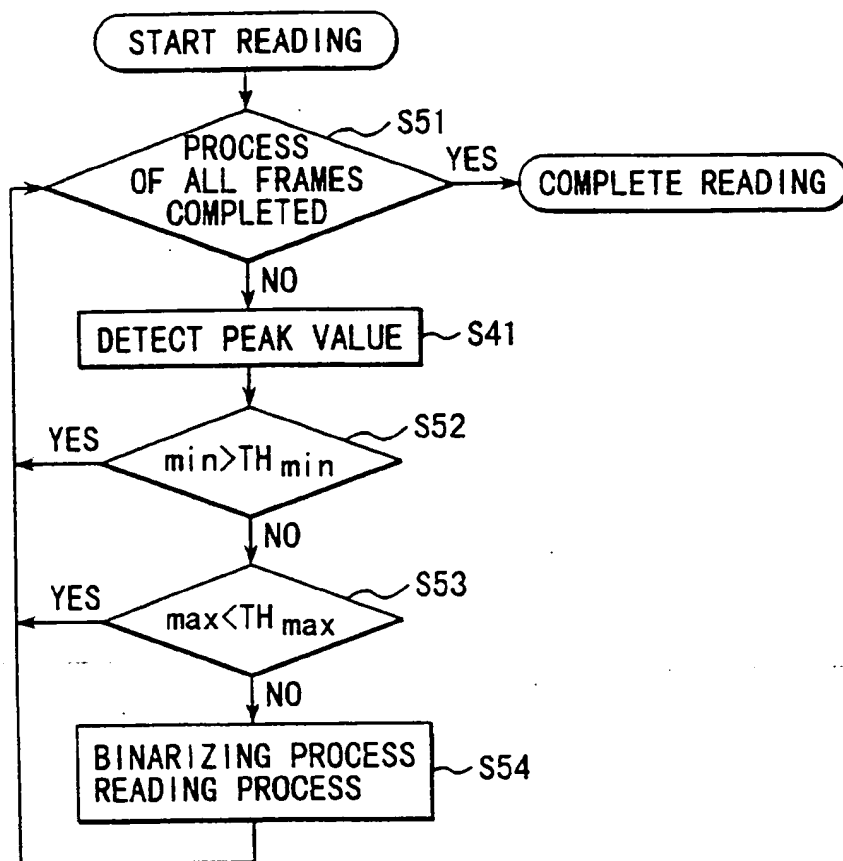


FIG. 33

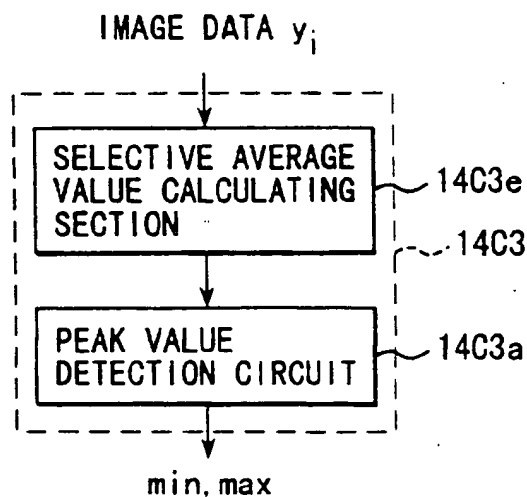


FIG. 34

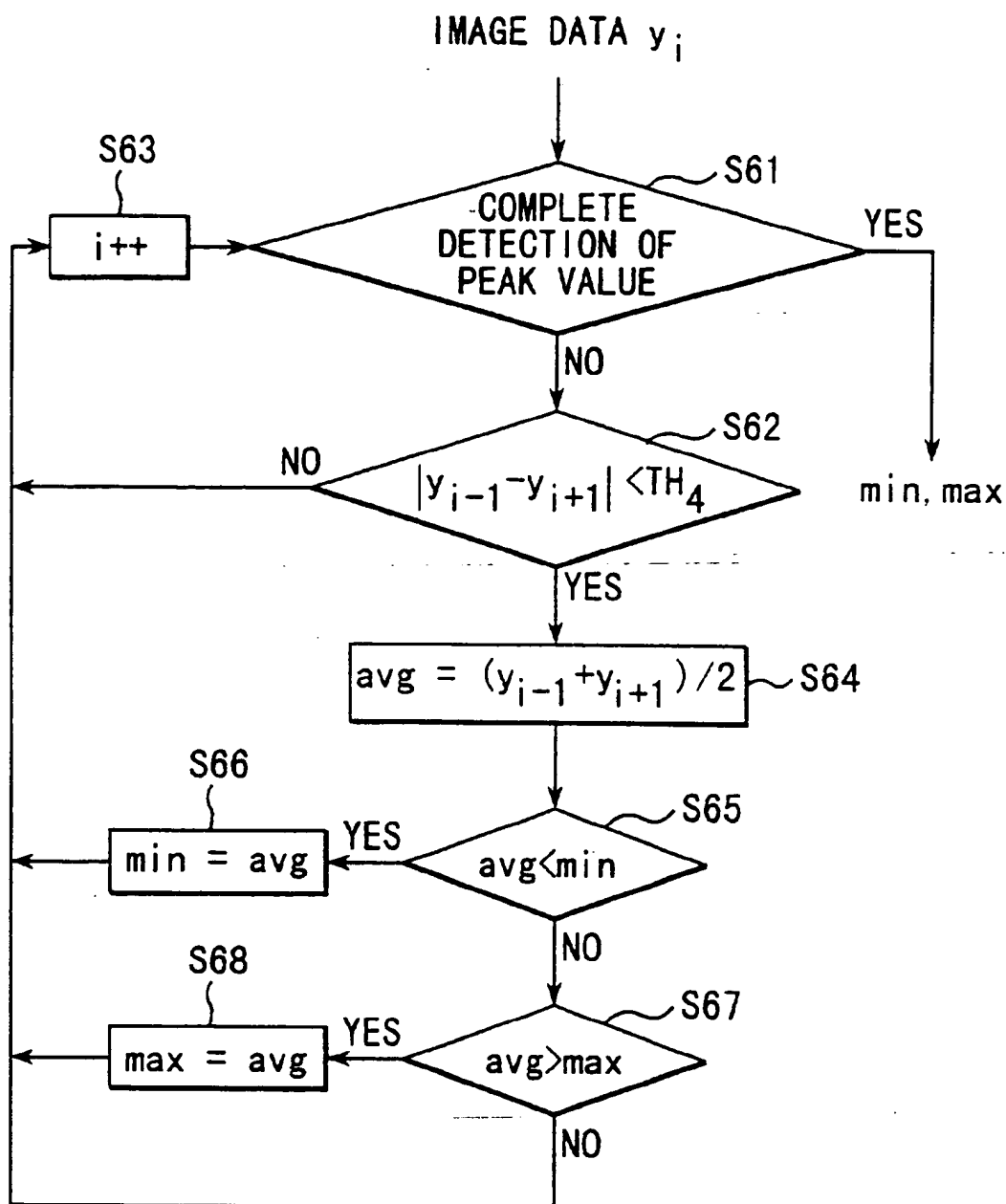
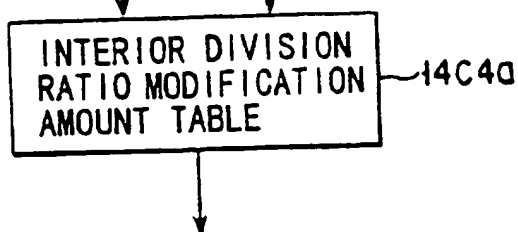


FIG. 35

TARGET VALUE S_t DOT AREA S



AMOUNT Δk OF MODIFICATION
OF INTERIOR DIVISION RATIO

FIG. 36A

INTERIOR DIVISION RATIO
MODIFICATION AMOUNT TABLE 14C4a

$S_t \backslash S$	6.0	6.5	7.0	7.5	8.0	8.5
6.0		-0.06	-0.13	-0.20	-0.28	-0.37
6.5	0.05		-0.07	-0.14	-0.21	-0.29
7.0	0.11	0.06		-0.08	-0.15	-0.22
7.5	0.17	0.12	0.07		-0.09	-0.16
8.0	0.24	0.18	0.13	0.08		-0.10
8.5	0.32	0.25	0.19	0.14	0.09	

IF MEASURED DOT AREA IS 7.0 AND TARGET
VALUE IS 8.0, THE AMOUNT OF MODIFICATION
OF INTERIOR DIVISION RATIO IS $\Delta k = 0.13$
IN ACCORDANCE WITH THE TABLE

FIG. 36B

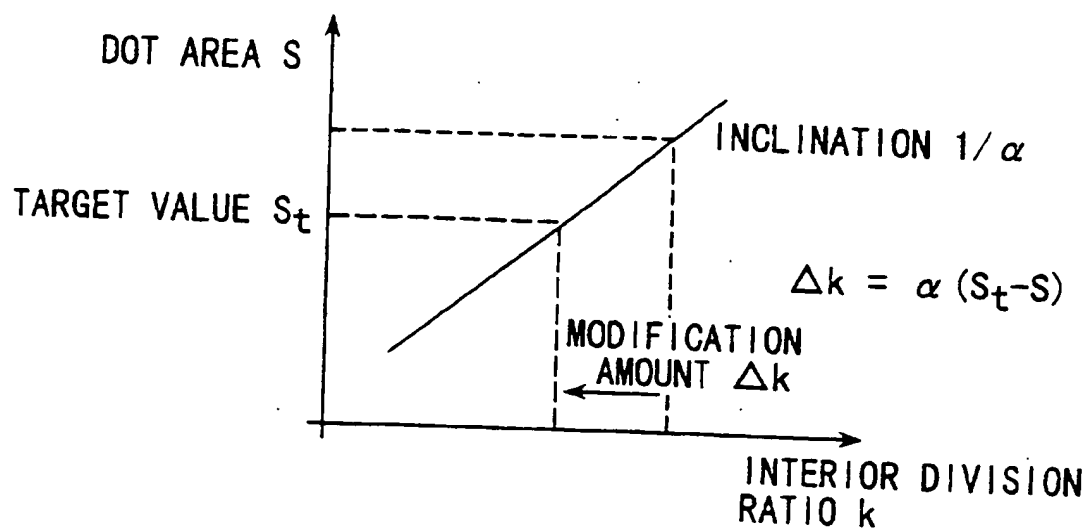


FIG. 37

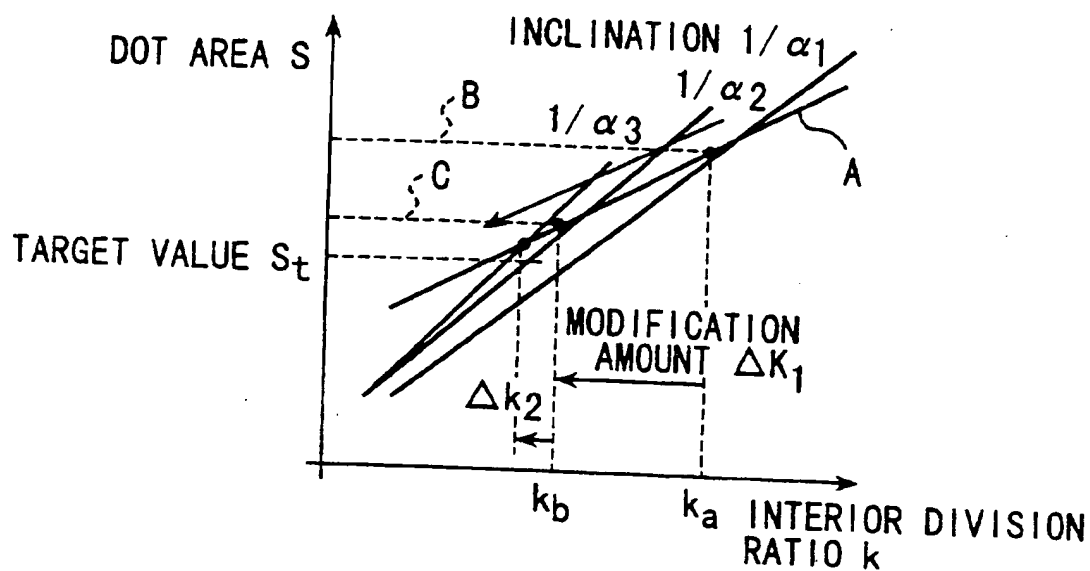


FIG. 38

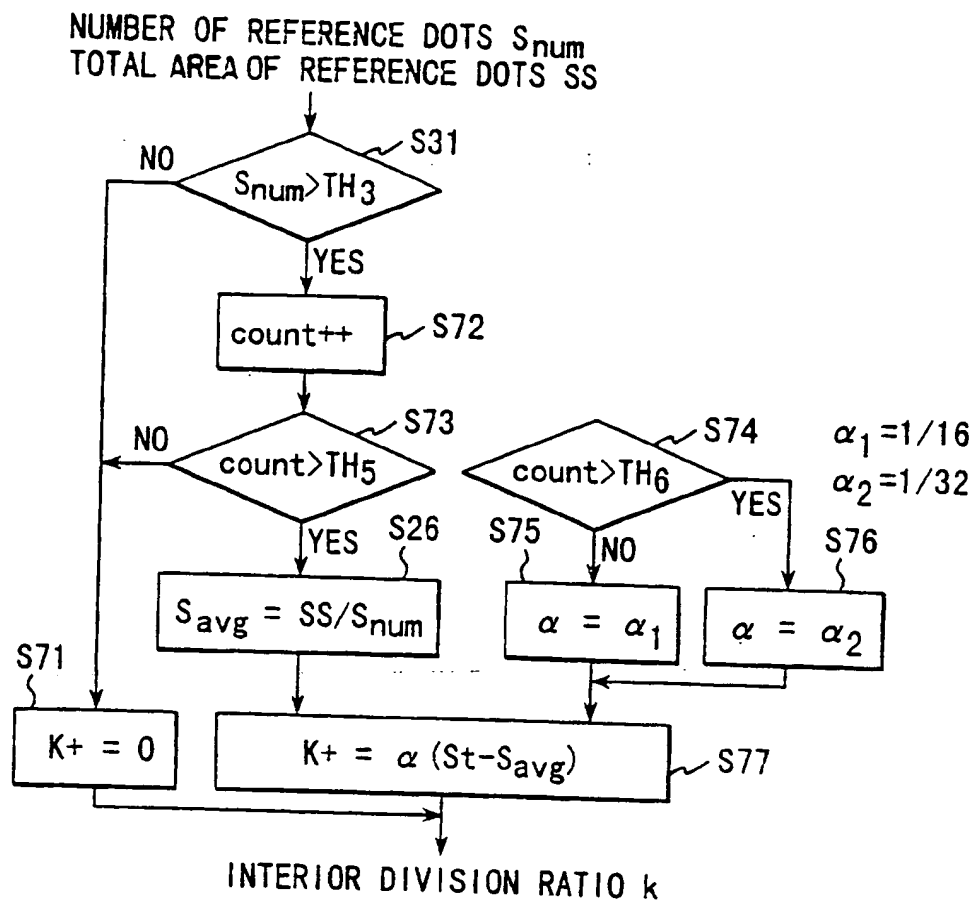


FIG. 39

INTERIOR DIVISION
RATIO k'
ACTUAL VALUE

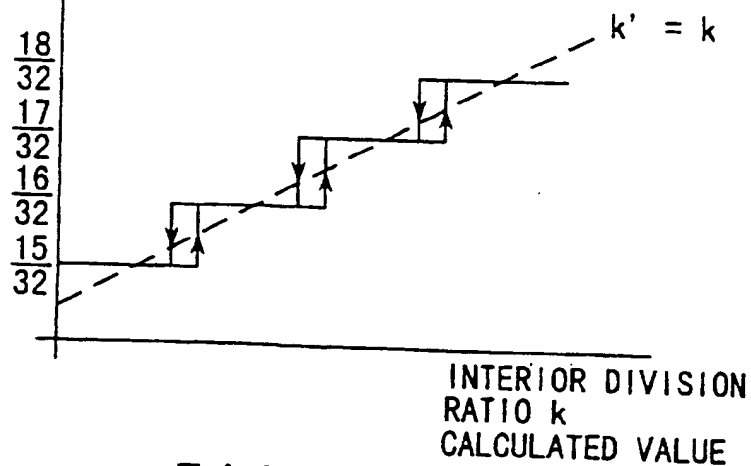


FIG. 40

INTERIOR DIVISION
RATIO k'
ACTUAL VALUE

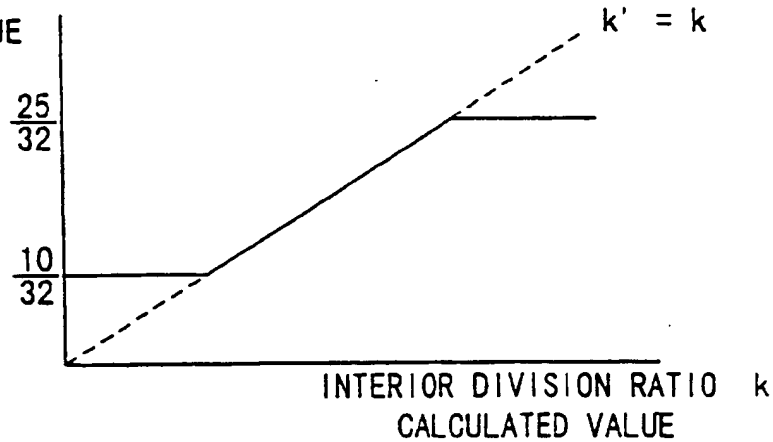


FIG. 41

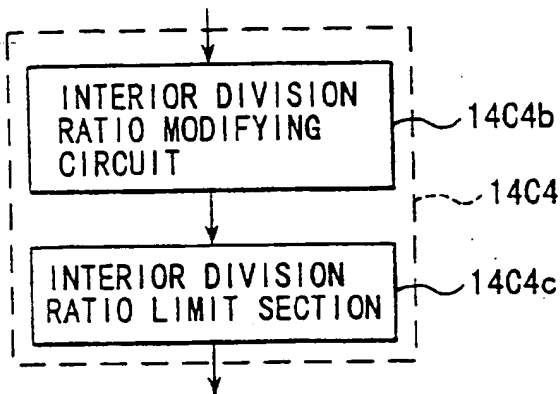


FIG. 42

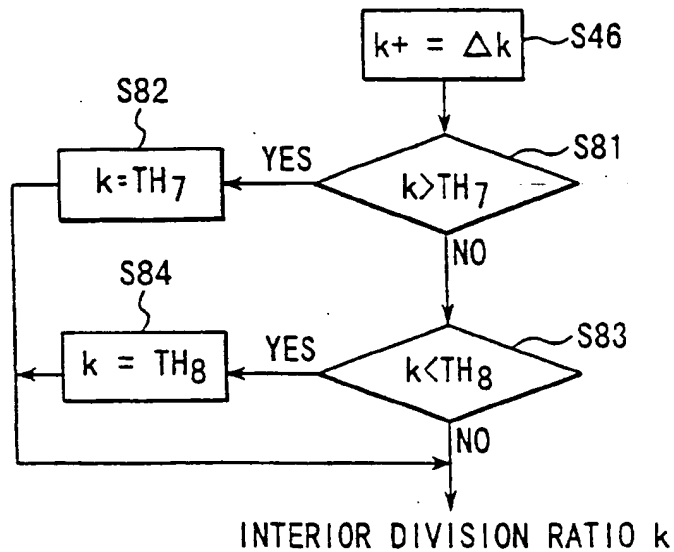


FIG. 43

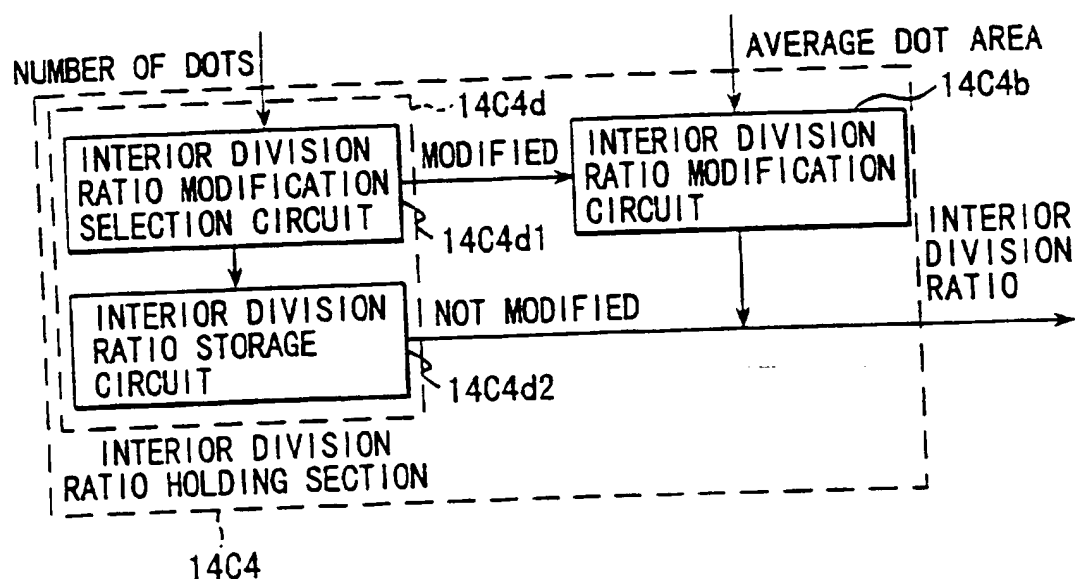


FIG. 44

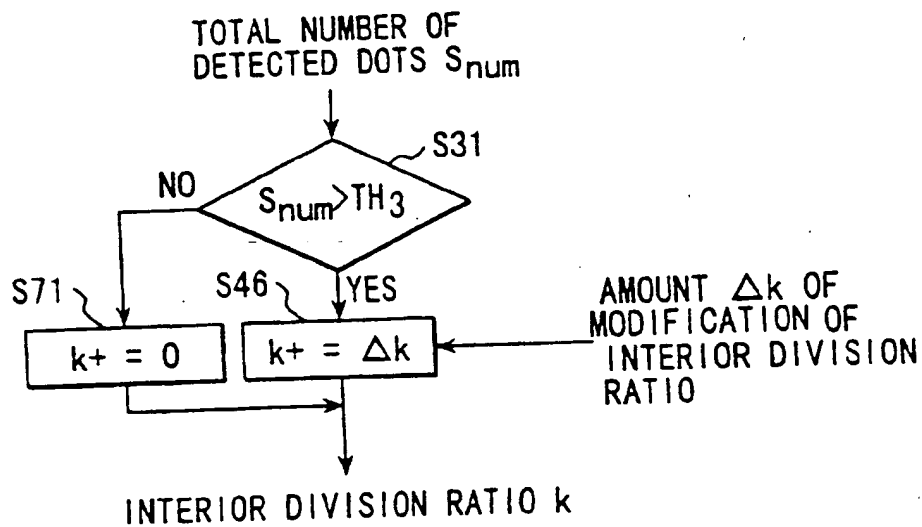
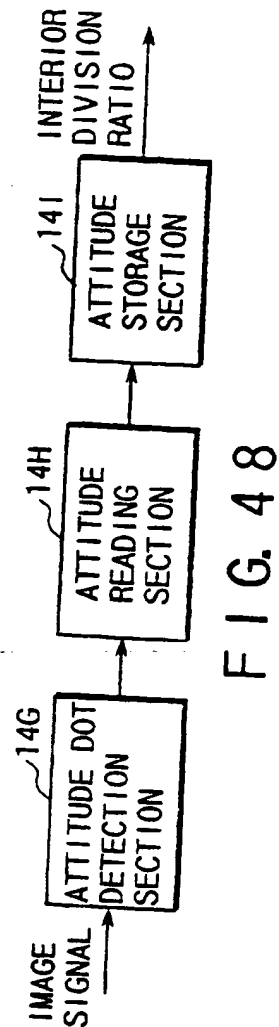
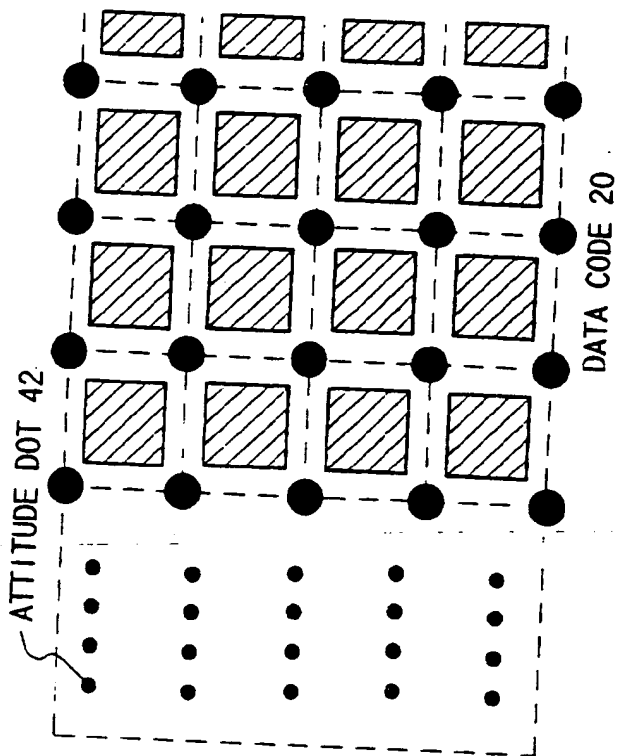
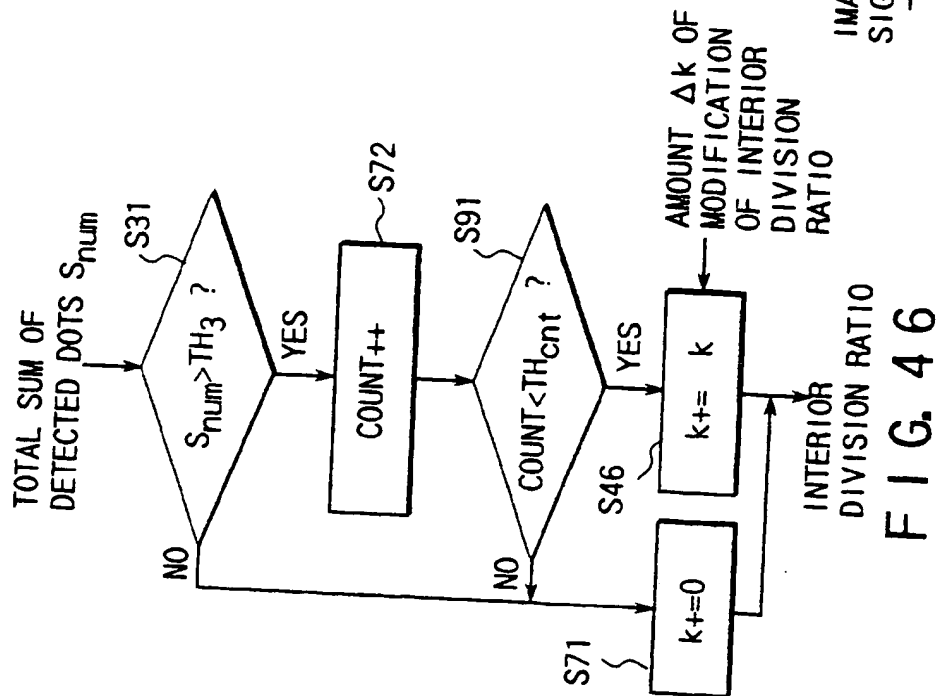


FIG. 45



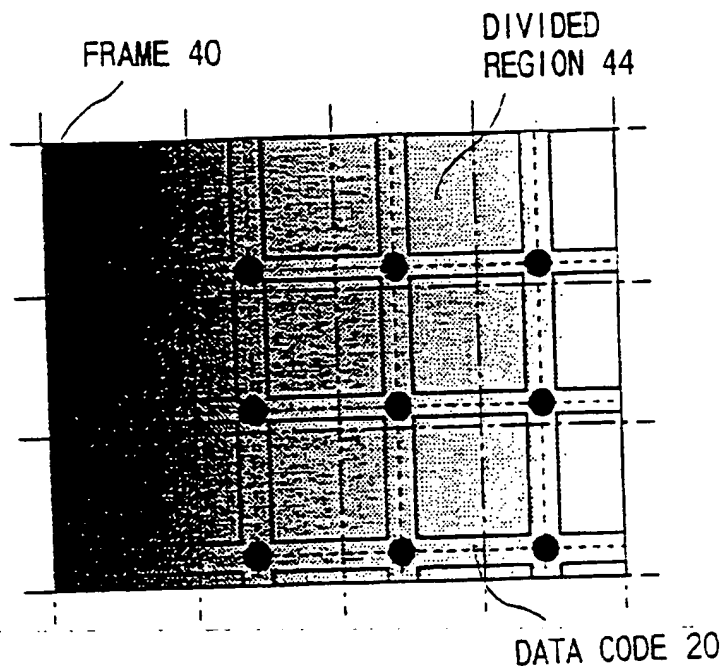


FIG. 49

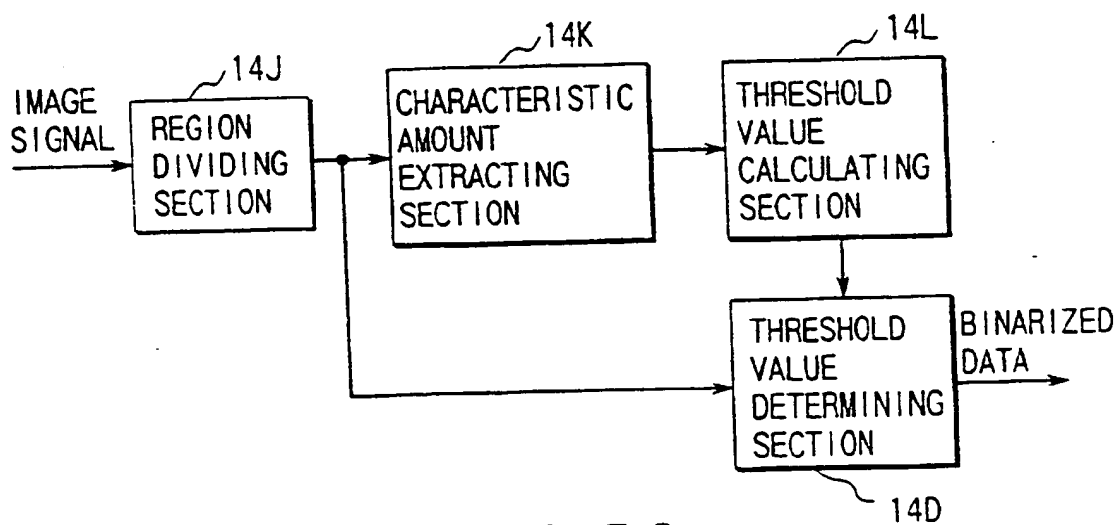


FIG. 50

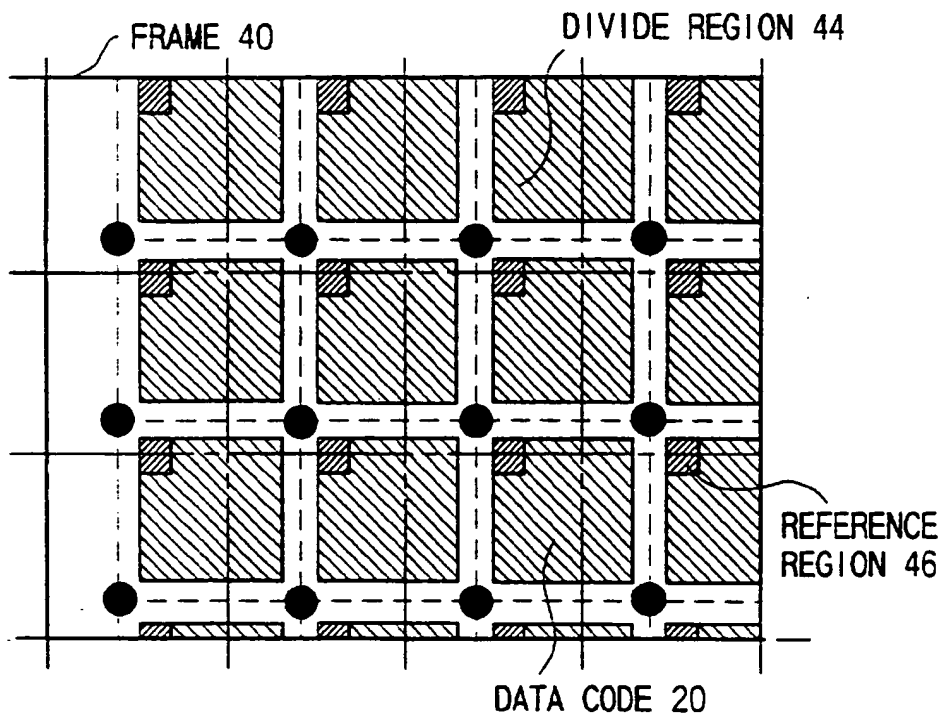


FIG. 51

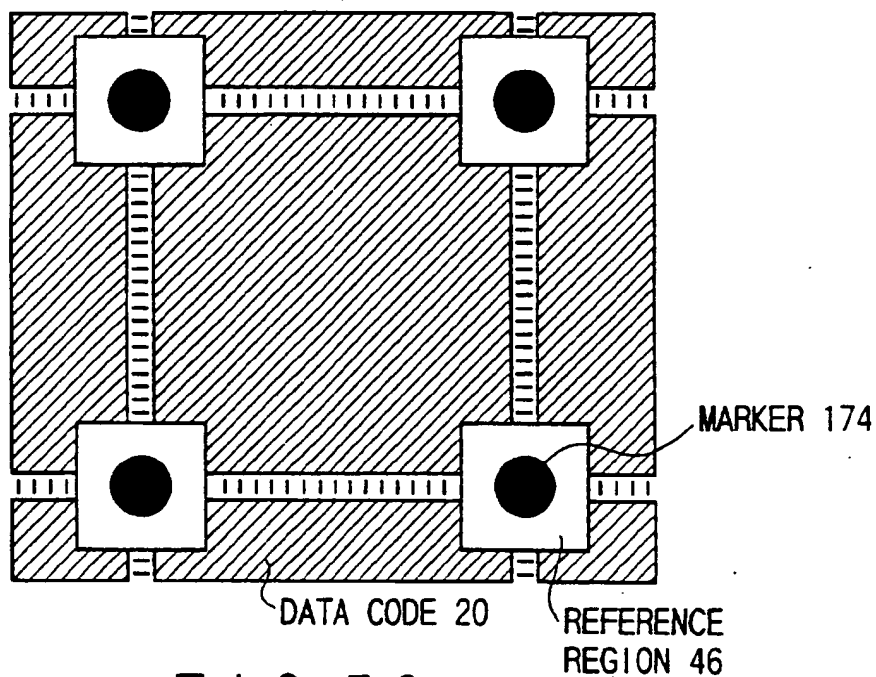


FIG. 52

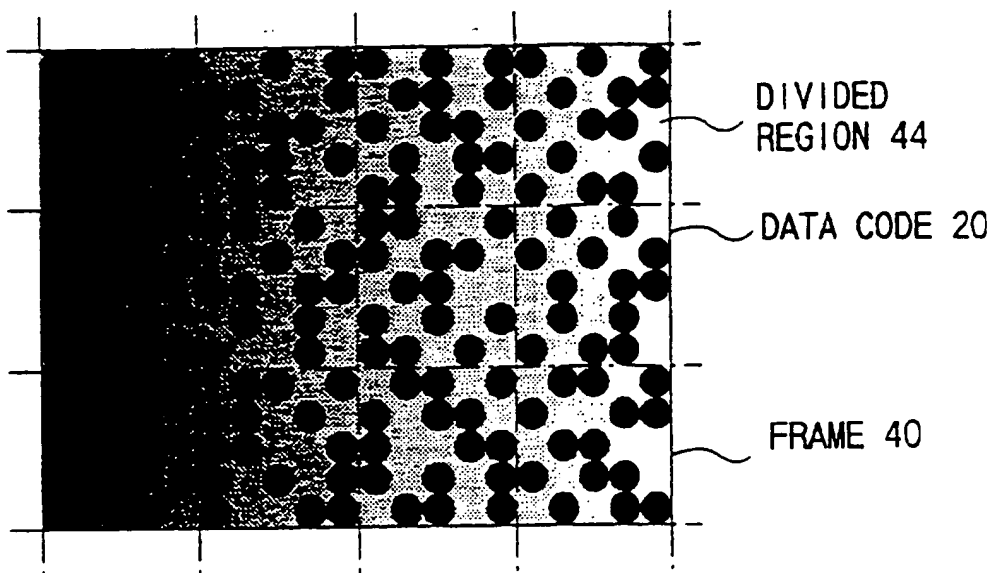


FIG. 53A

max=180 th=90	max=190 th=95	max=200 th=100	max=210 th=105
max=182 th=91	max=193 th=92	max=205 th=103	max=212 th=106
max=178 th=89	max=187 th=94	max=198 th=99	max=207 th=104

FIG. 53B

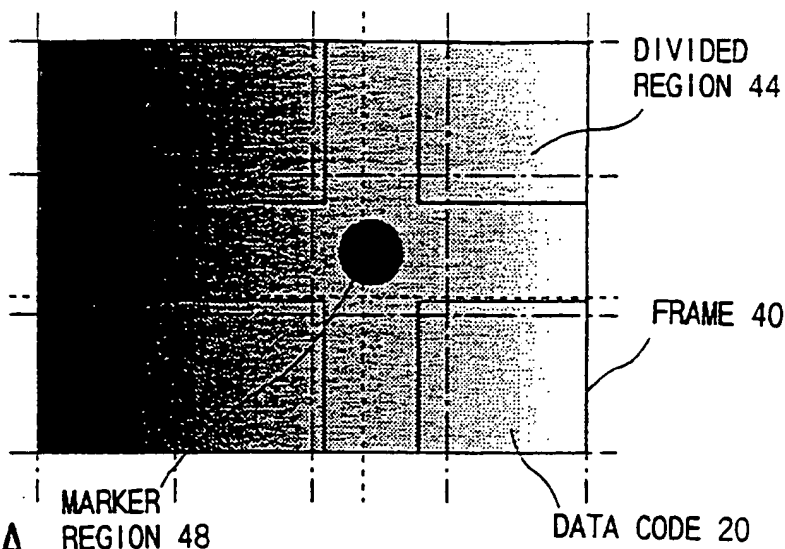


FIG. 54A

max=180 min=60 →20	max=190 min=63 →20	max=200 min=65 →20	max=210 min=68 →20
max=182 min=61 →20	max=193 min=65 →20	max=205 min=20 fr_min20	max=212 min=69 →20
max=178 min=58 →20	max=187 min=60 →20	max=198 min=62 →20	max=207 min=65 →20

FIG. 54B

WHEN INTERIOR DIVISION RATIO $k=0.5$ AND
MINIMUM VALUE fr_min OF OVERALL PORTION
OF PREVIOUS FRAME IS 20

max=180 $th=k(180-20)+20$ =100	max=190 $th=k(190-20)+20$ =105	max=200 $th=k(200-20)+20$ =110	max=210 $th=k(210-20)+20$ =115
--------------------------------------	--------------------------------------	--------------------------------------	--------------------------------------

DIVIDED
REGION 44

FIG. 55

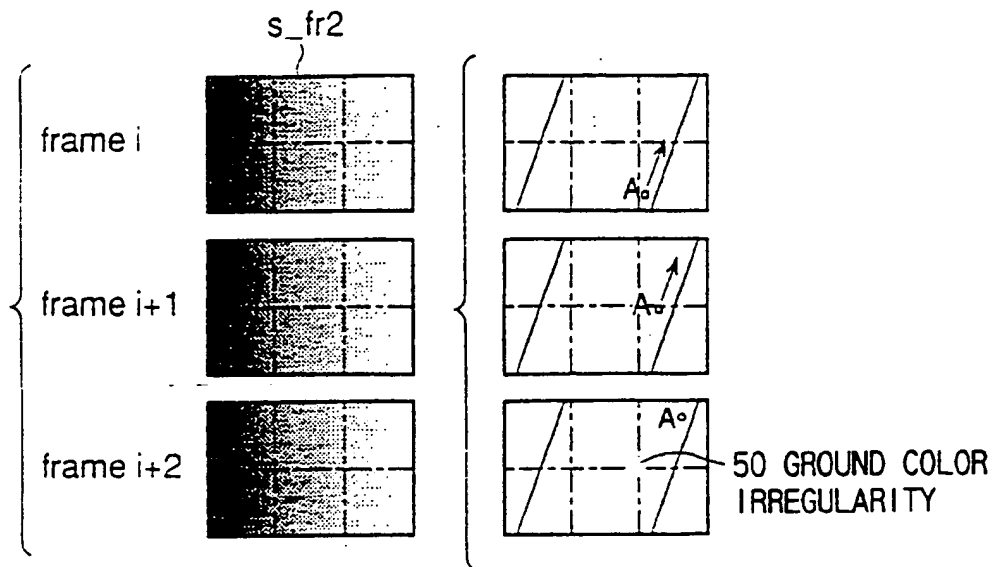


FIG. 56A

FIG. 56B

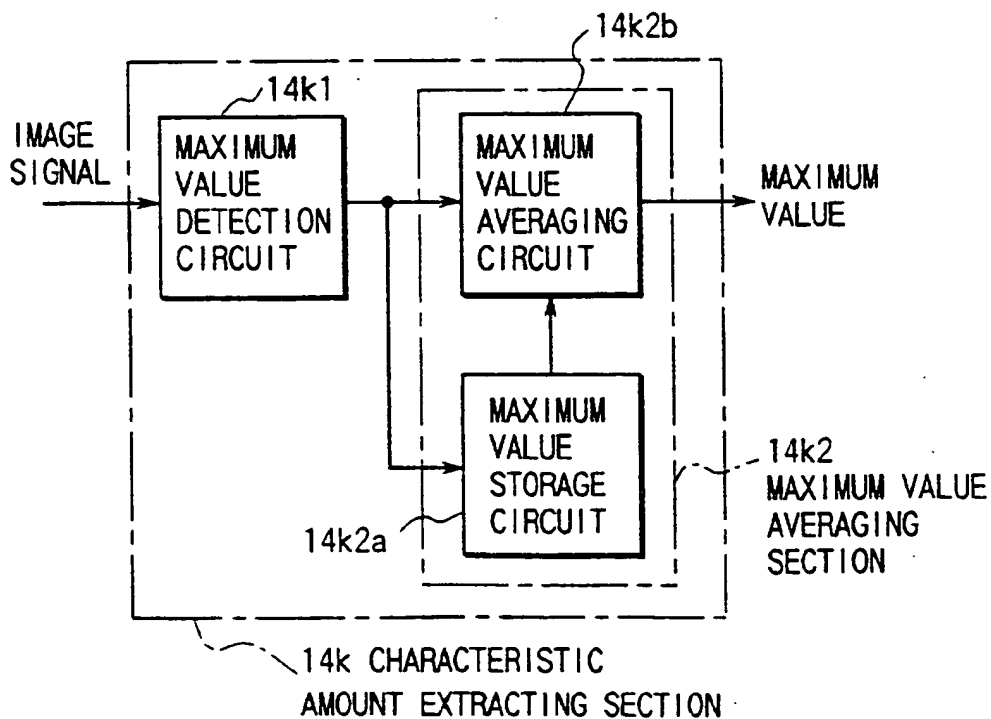


FIG. 57

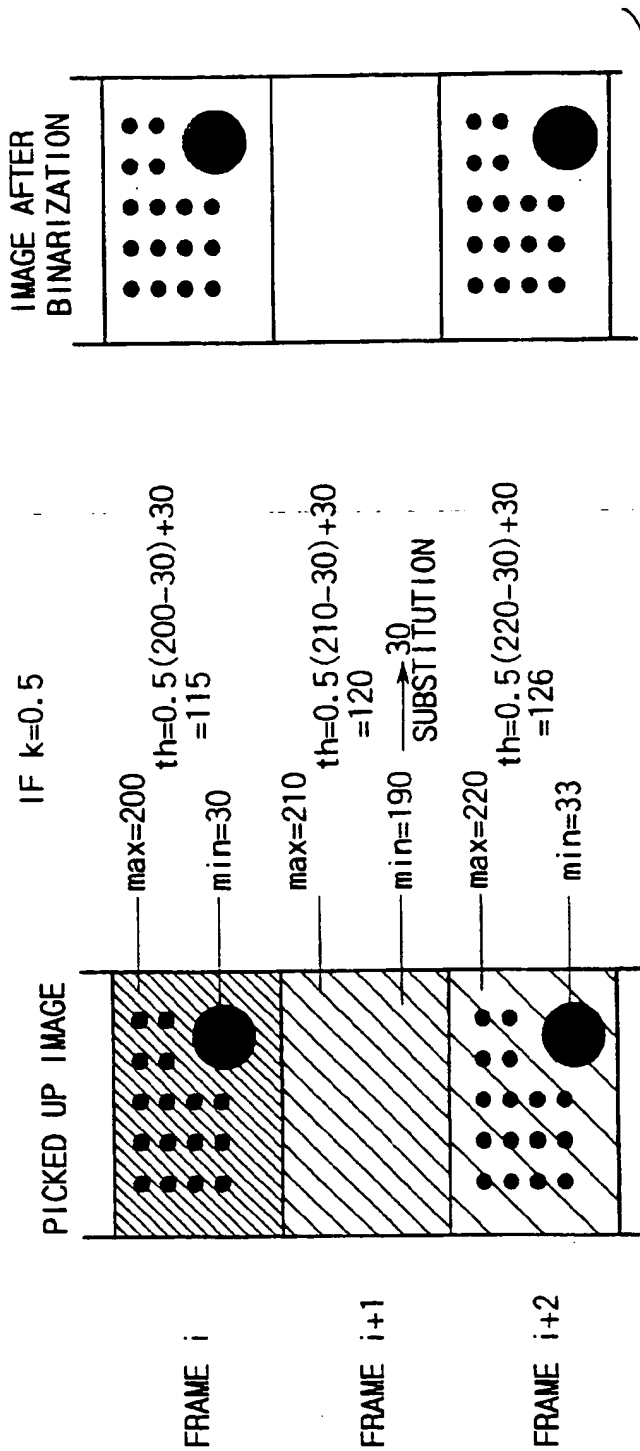
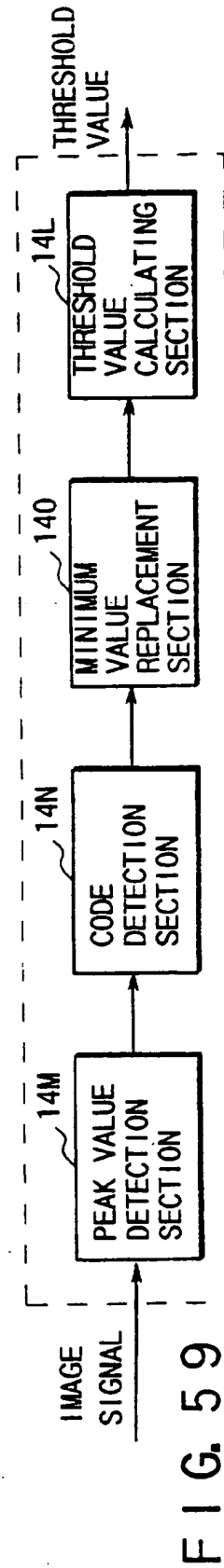


FIG. 58



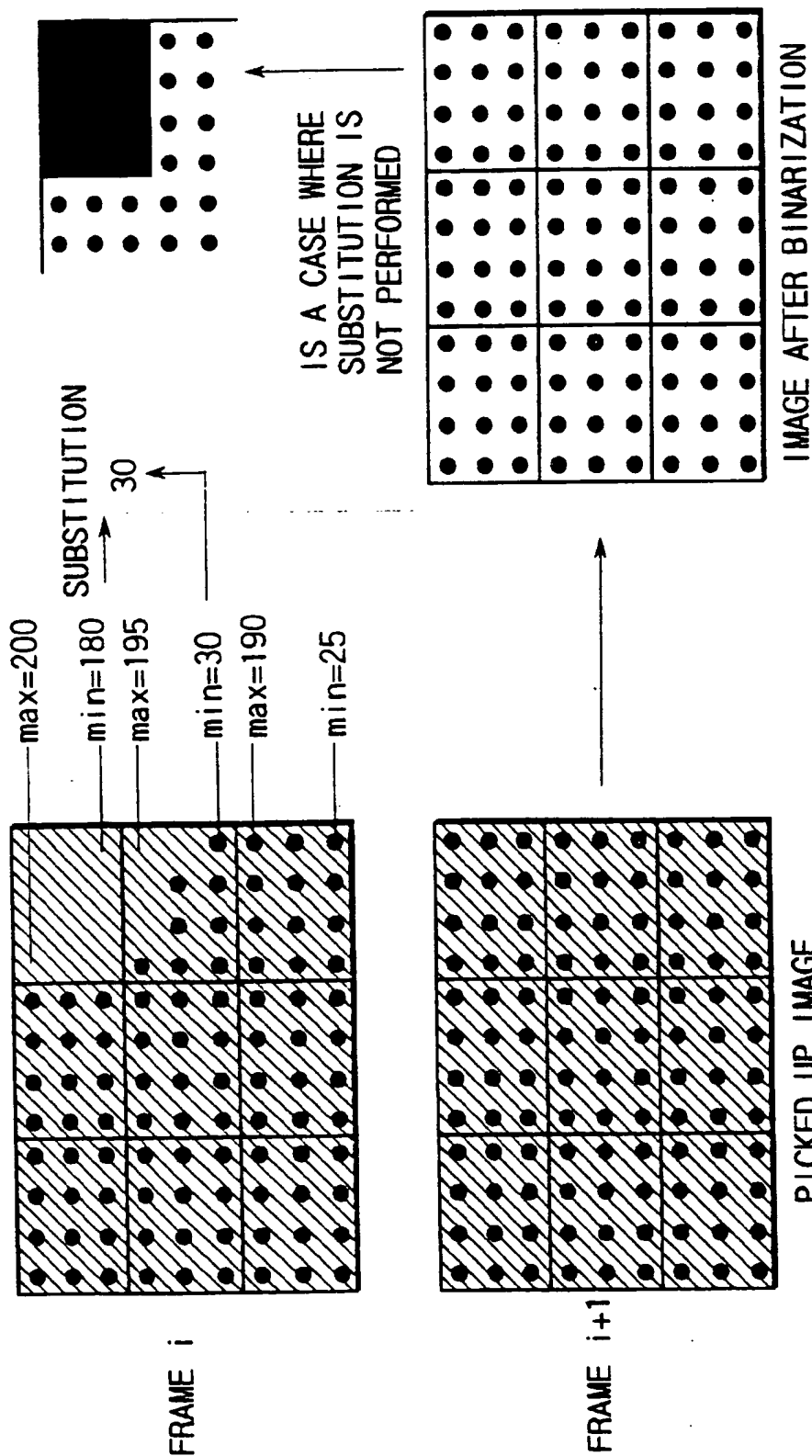


FIG. 60

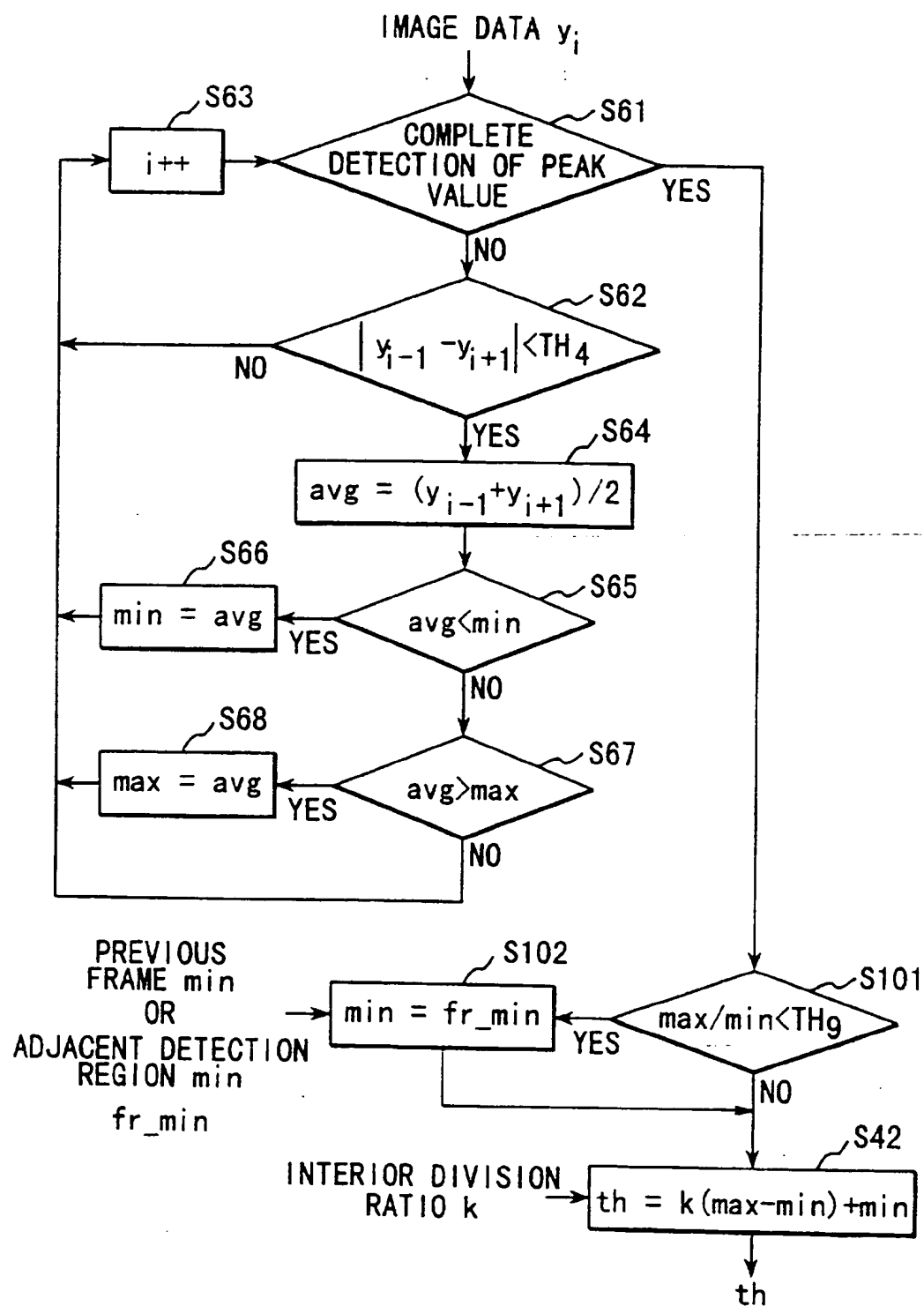


FIG. 61

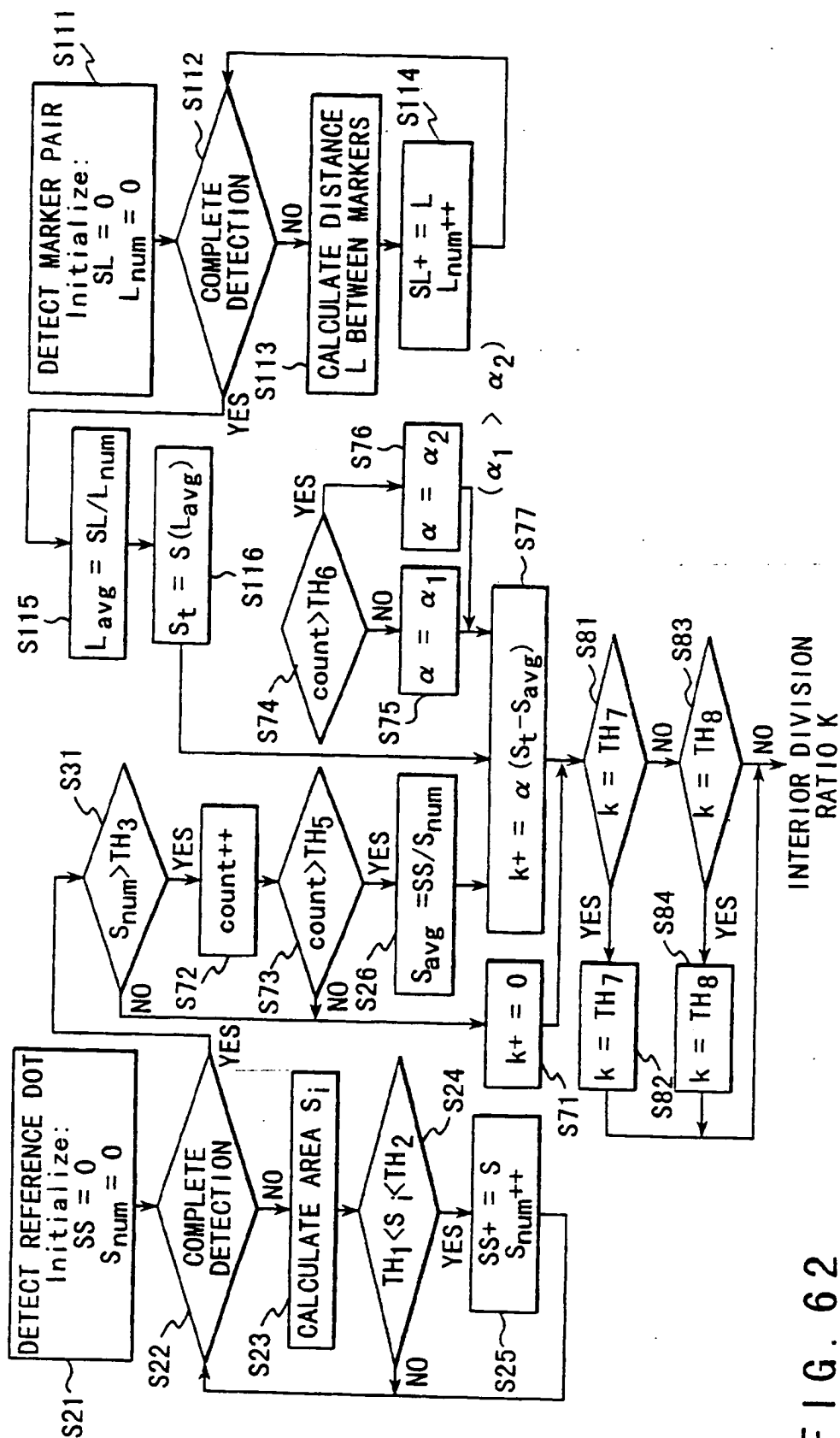


FIG. 62

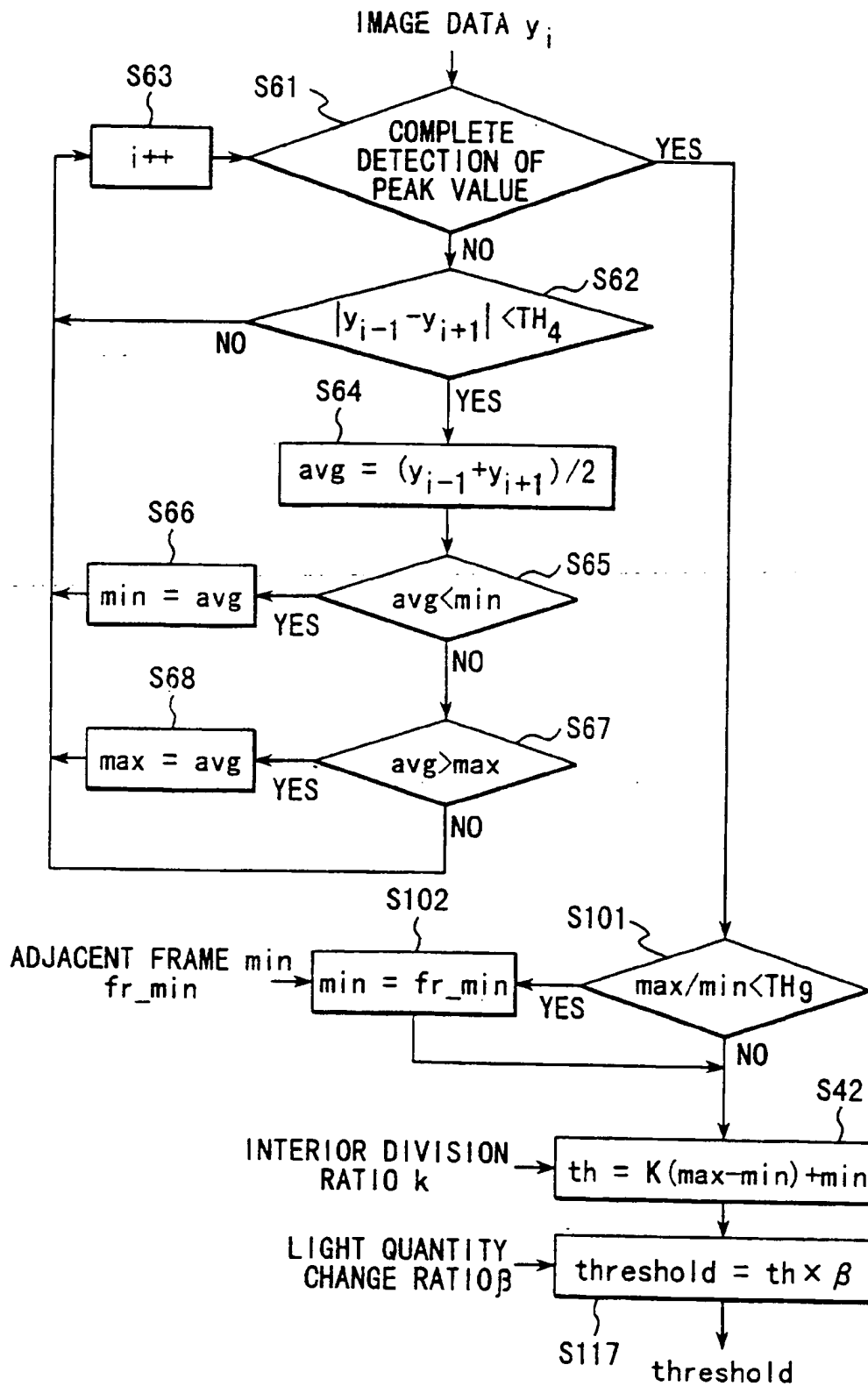


FIG. 63

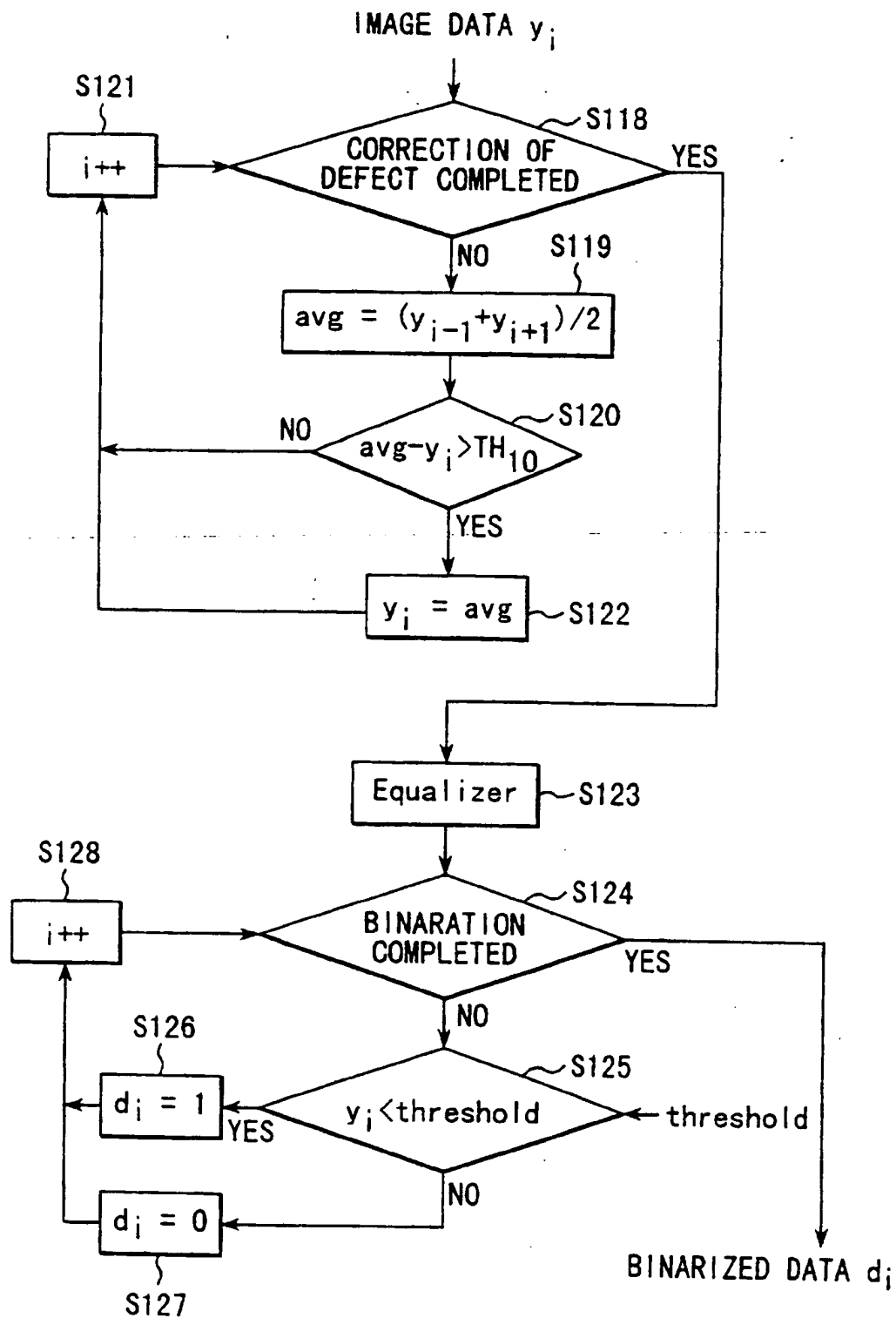


FIG. 64



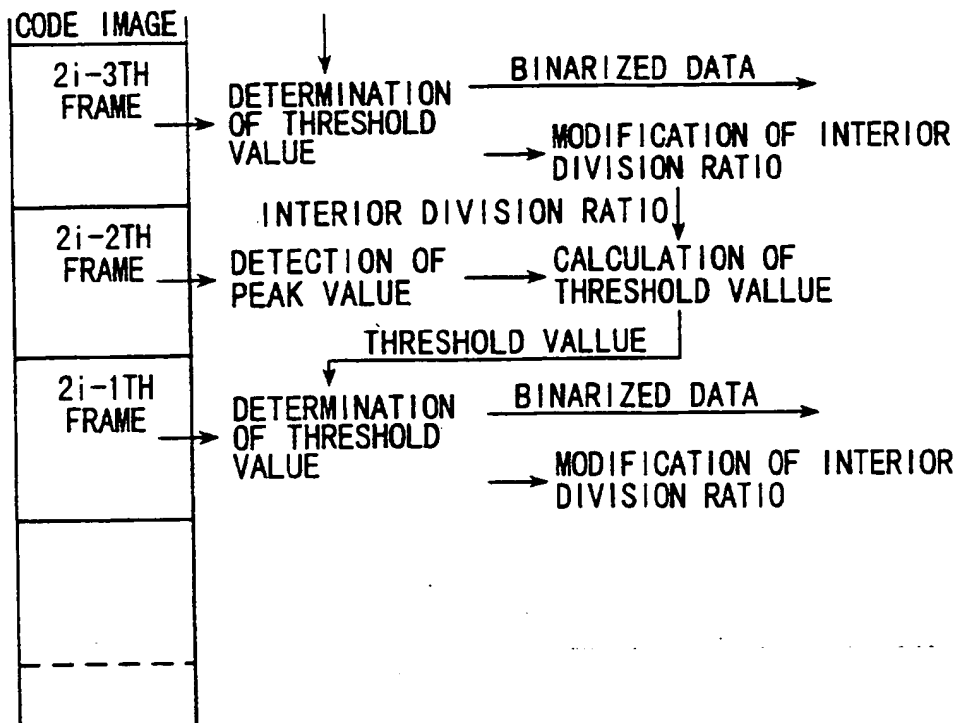


FIG. 66A

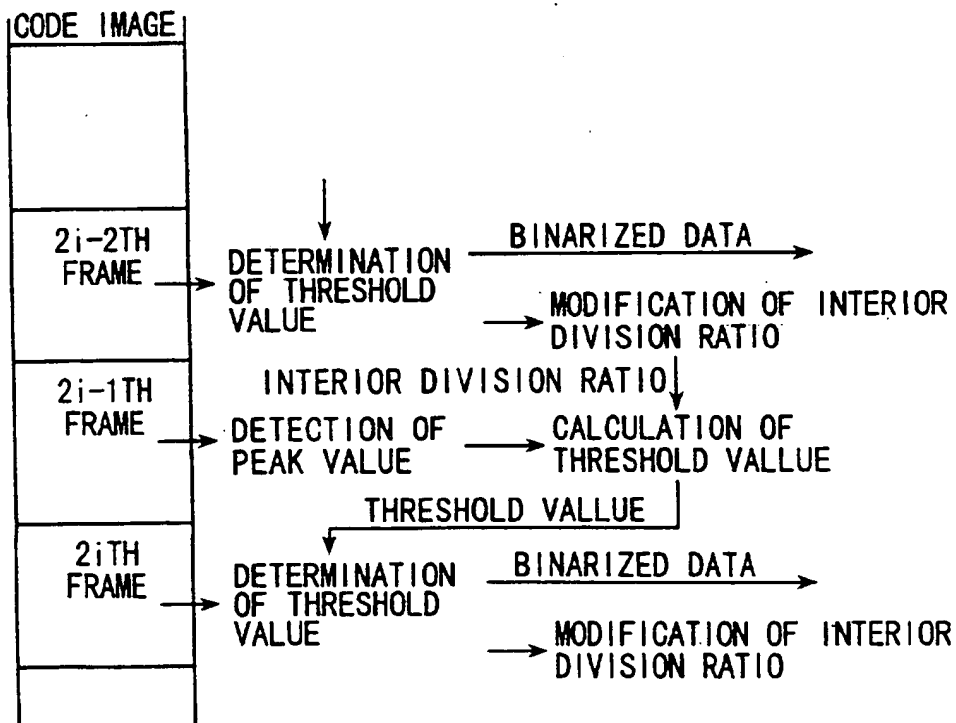


FIG. 66B

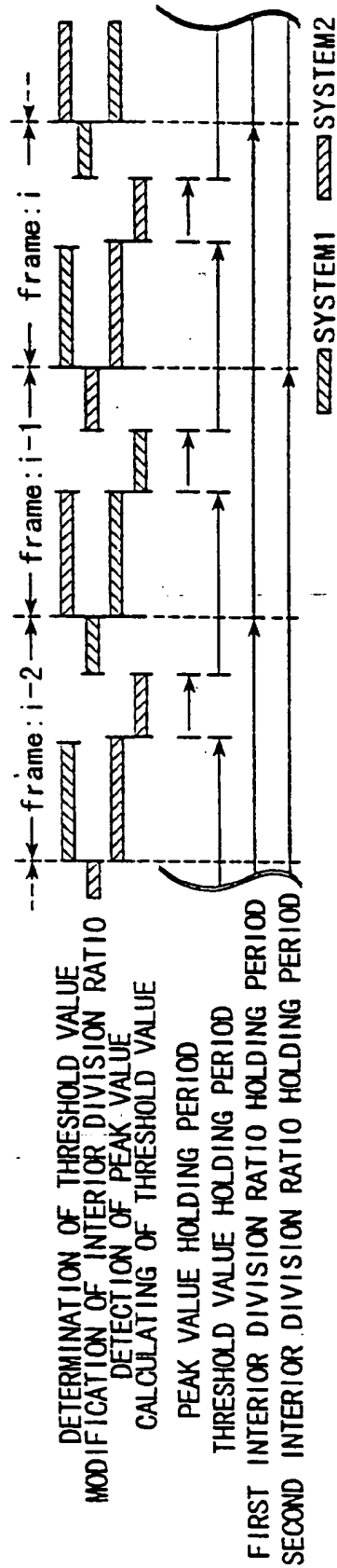


FIG. 67

FIG. 68A

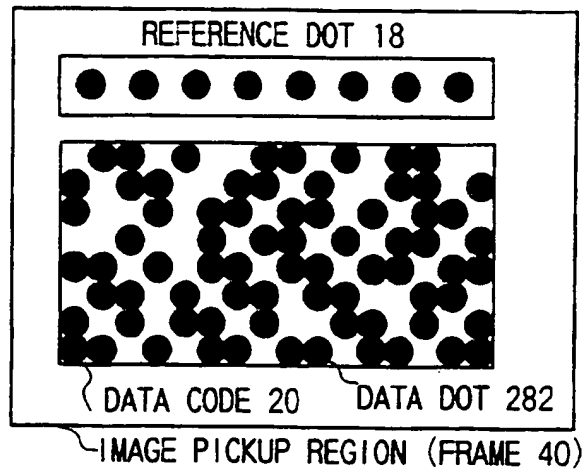


FIG. 68B

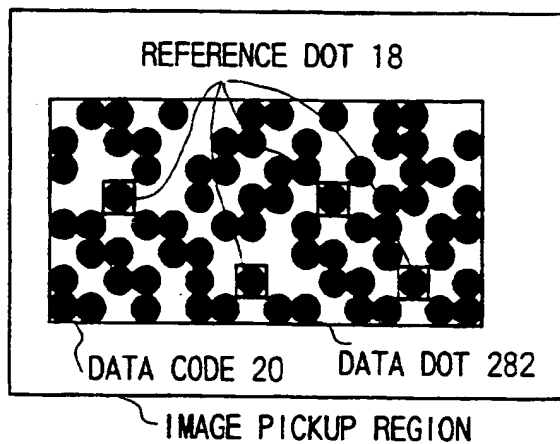


FIG. 69A

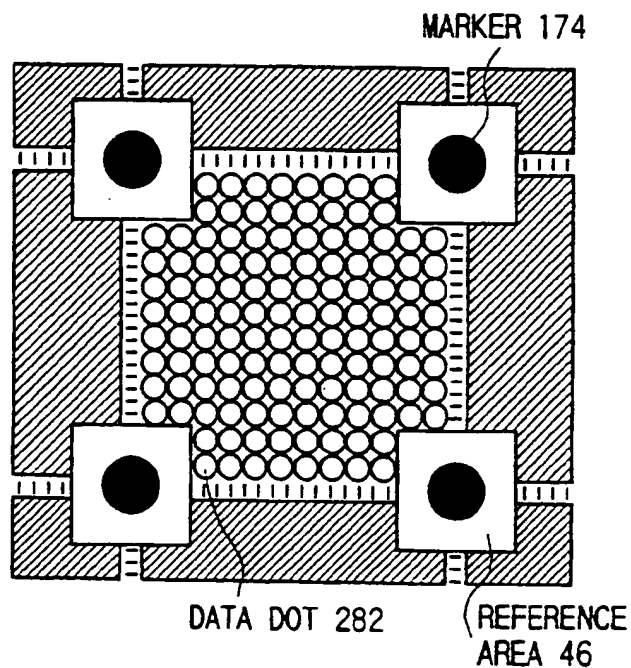


FIG. 69B

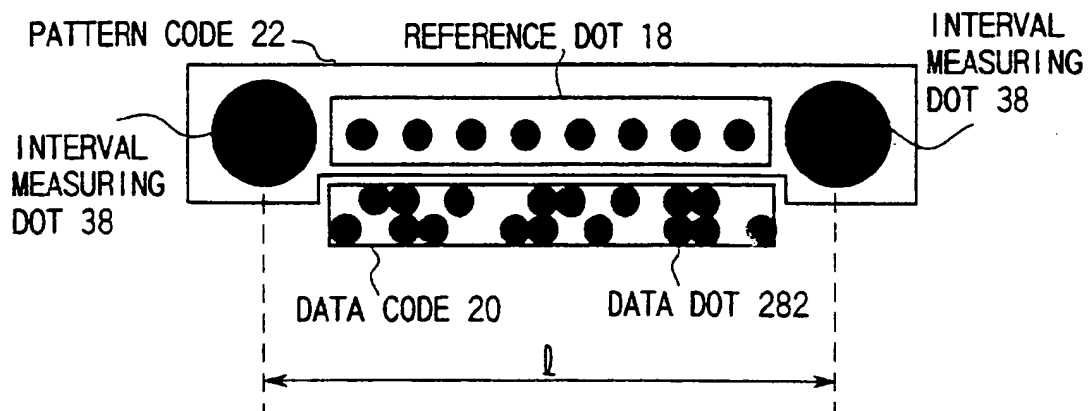
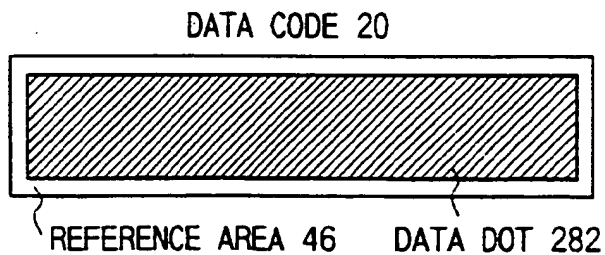


FIG. 70A

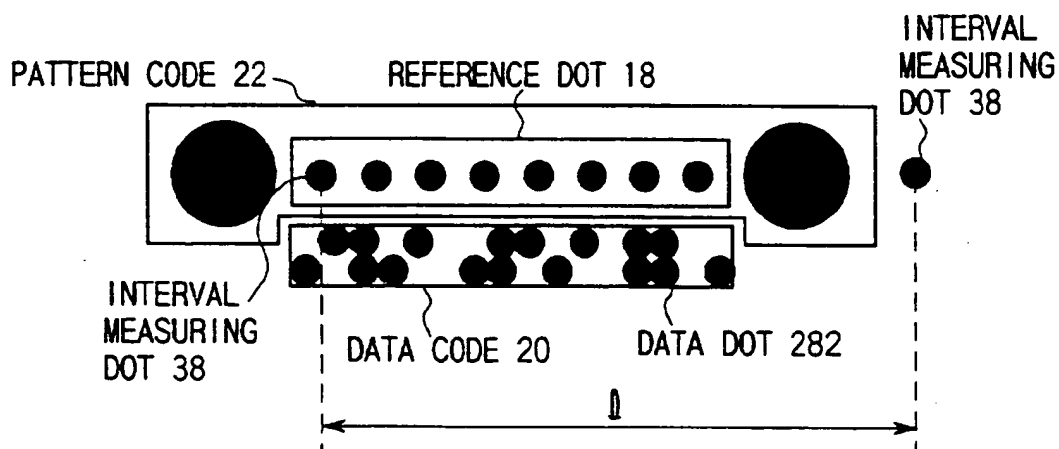


FIG. 70B

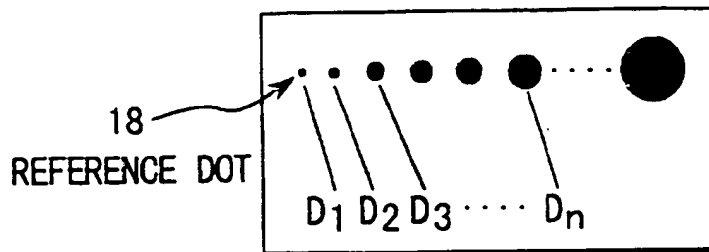


FIG. 71A

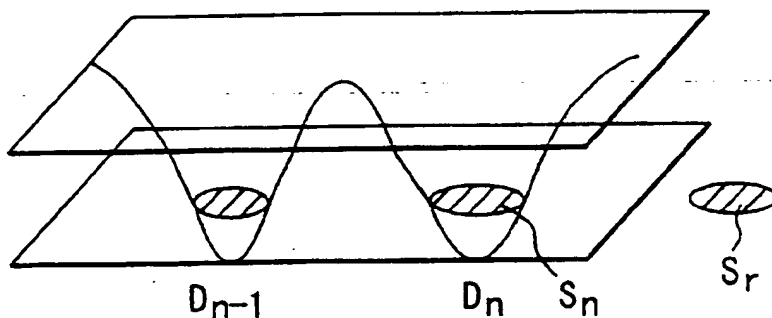
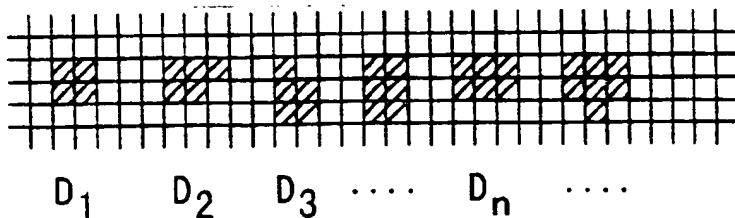


FIG. 71B



MINIMUM PRINTING UNIT
 (RESOLVING POWER OF PRINTER)

FIG. 74

INPUT OF DATA TO BE PRINTED

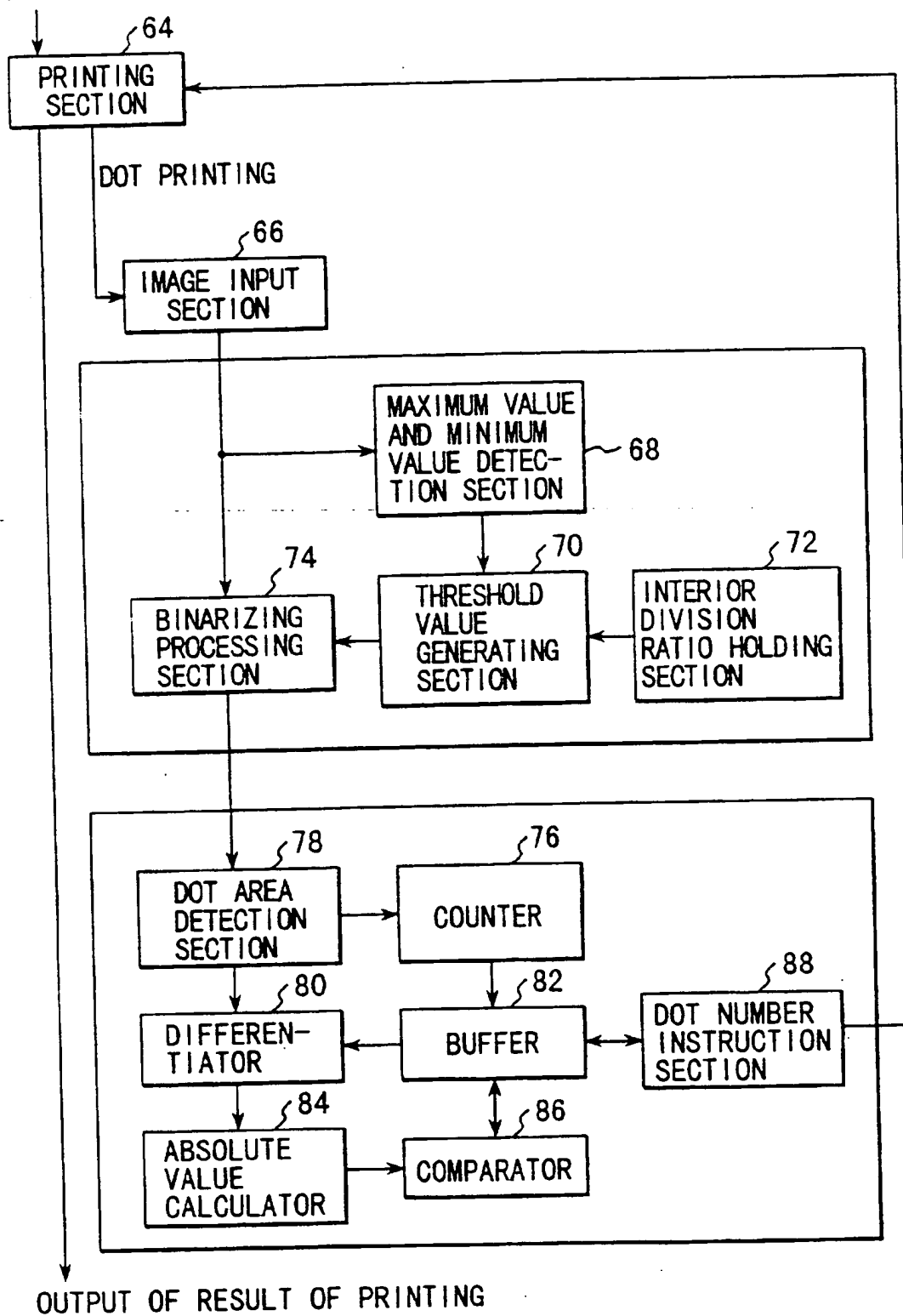


FIG. 72

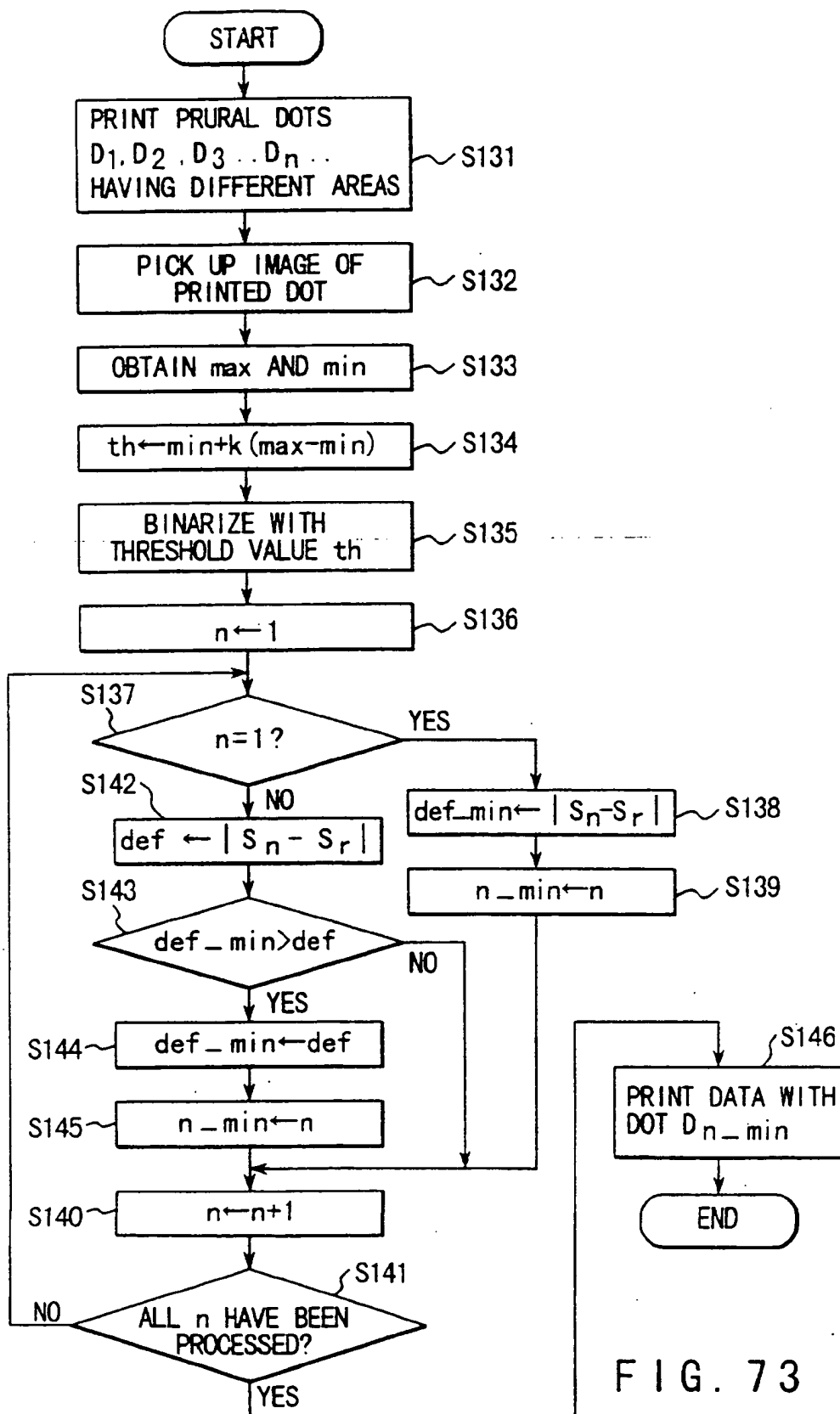


FIG. 73

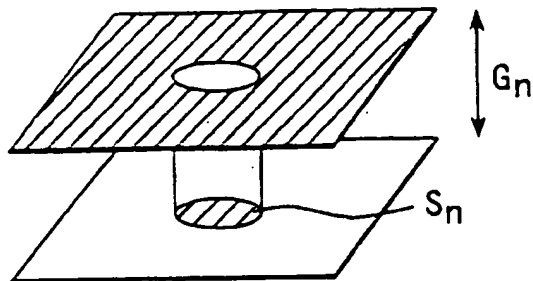


FIG. 75A

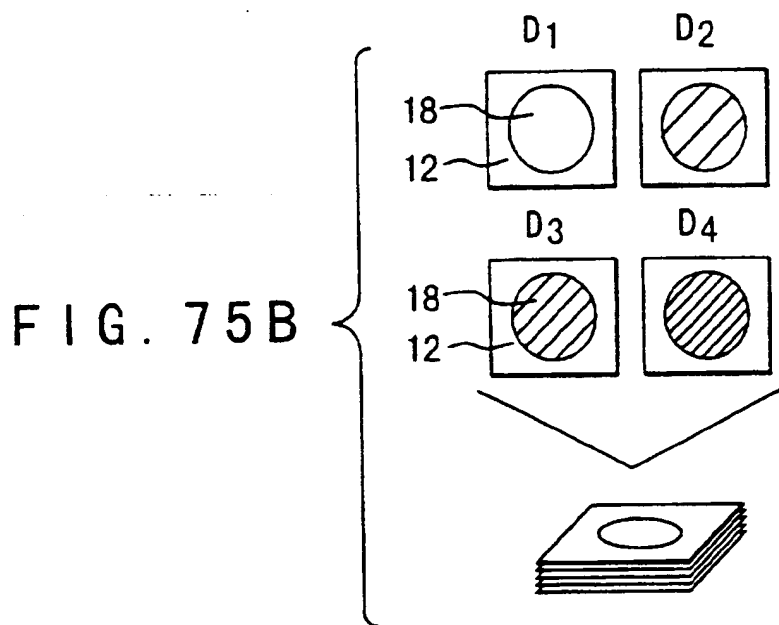


FIG. 75B

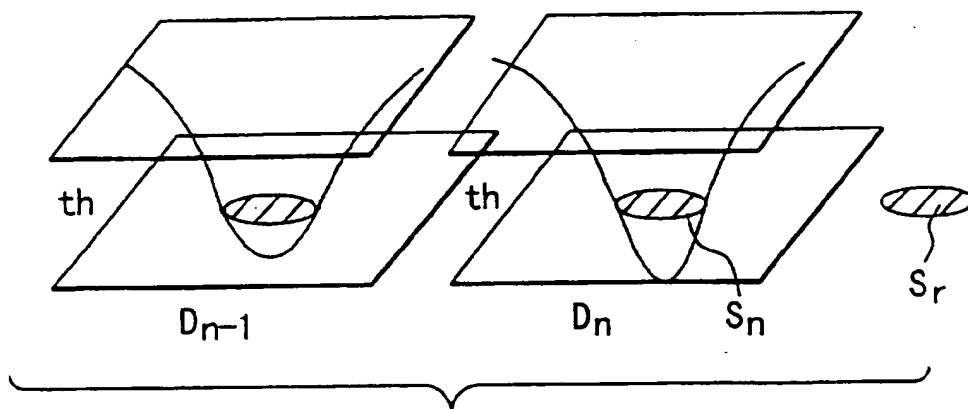


FIG. 75C

INPUT OF DATA TO BE PRINTED

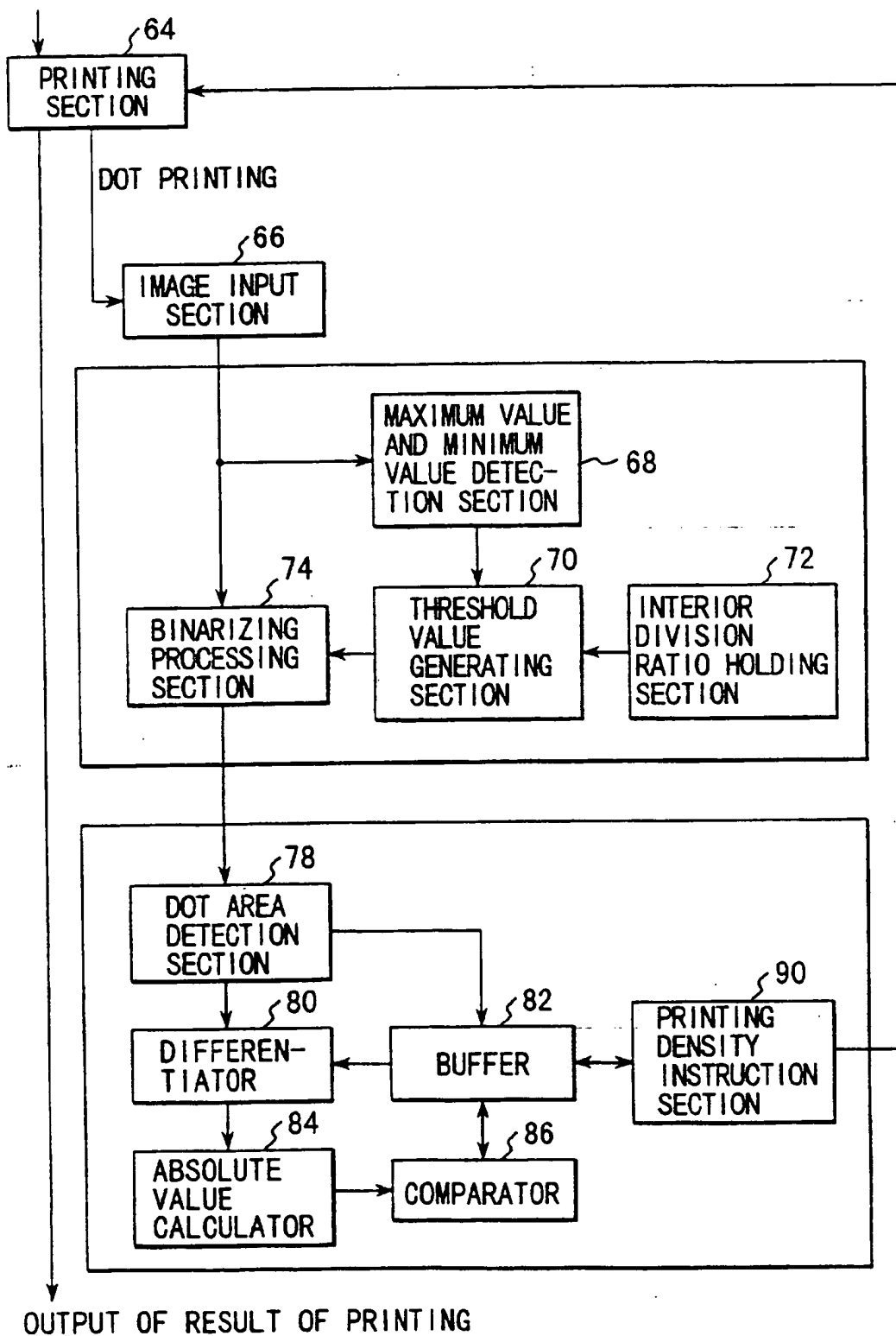


FIG. 76

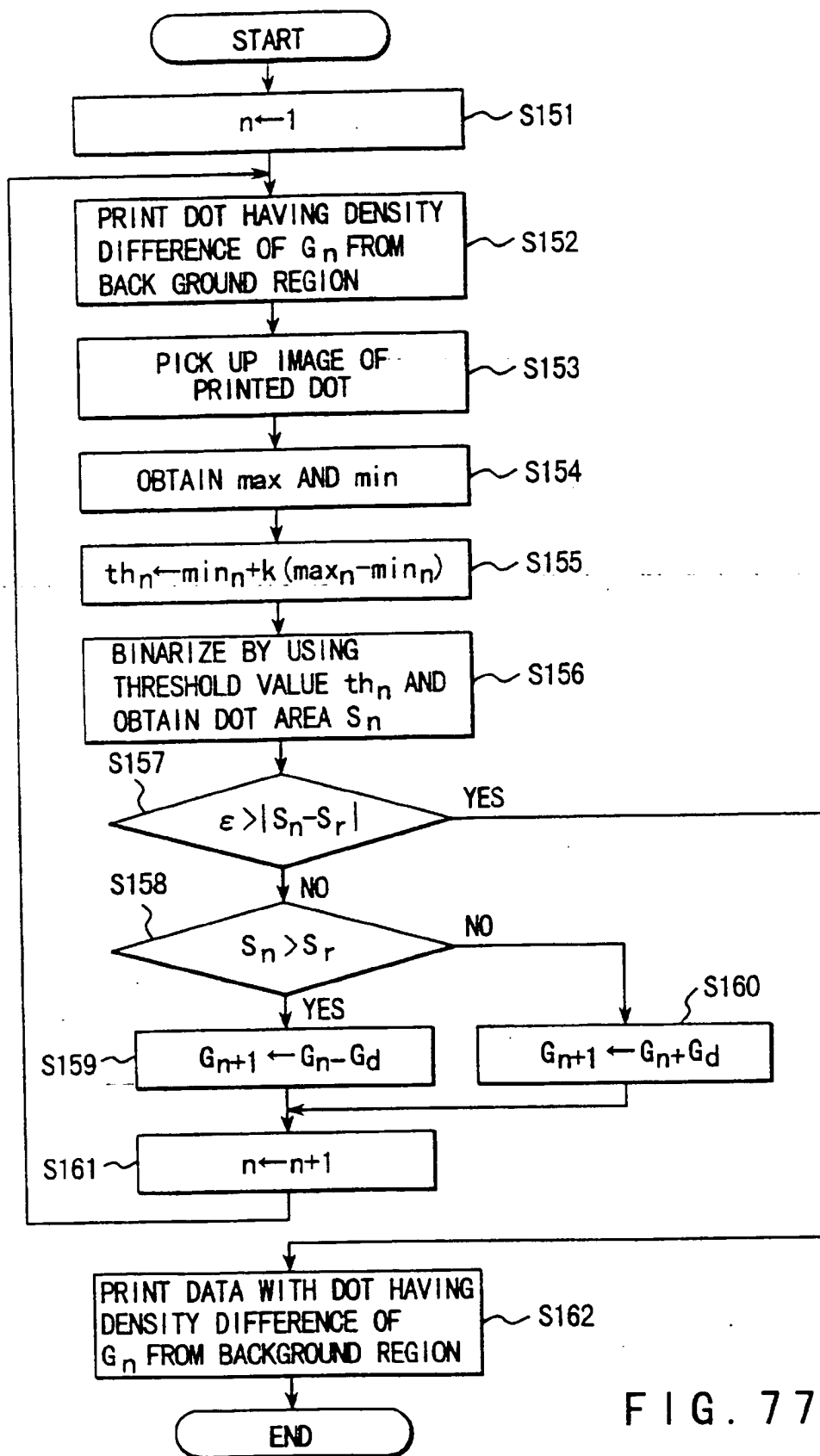


FIG. 77

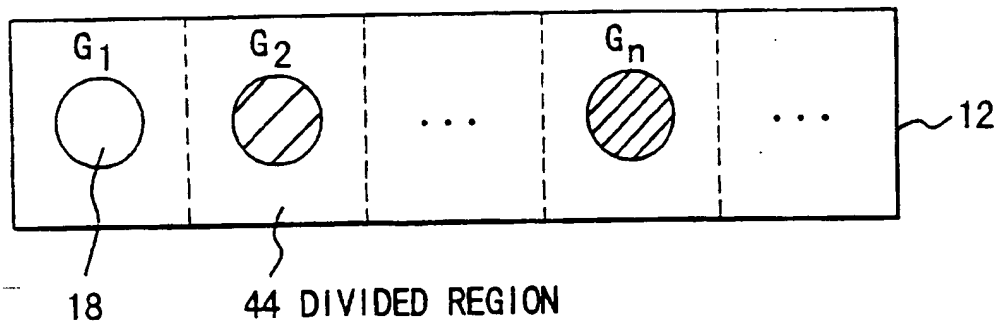


FIG. 78A

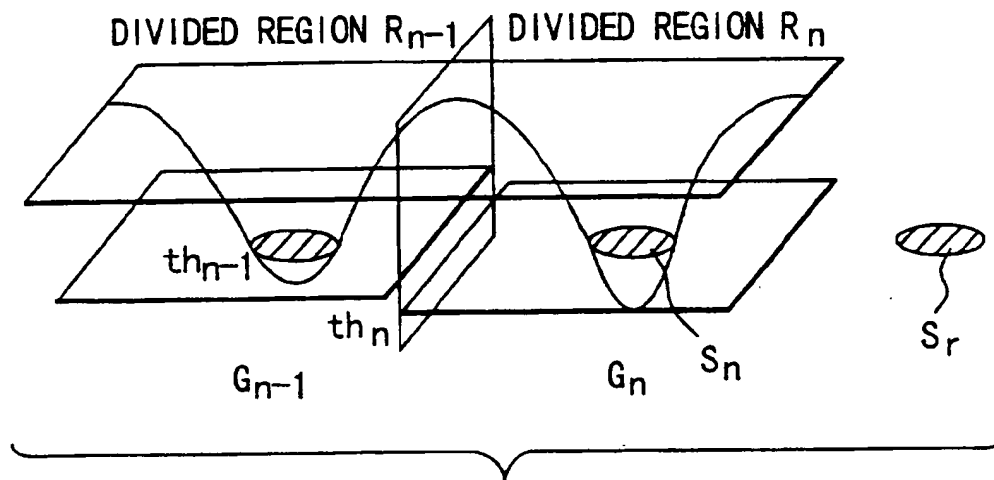


FIG. 78B

INPUT OF DATA TO BE PRINTED

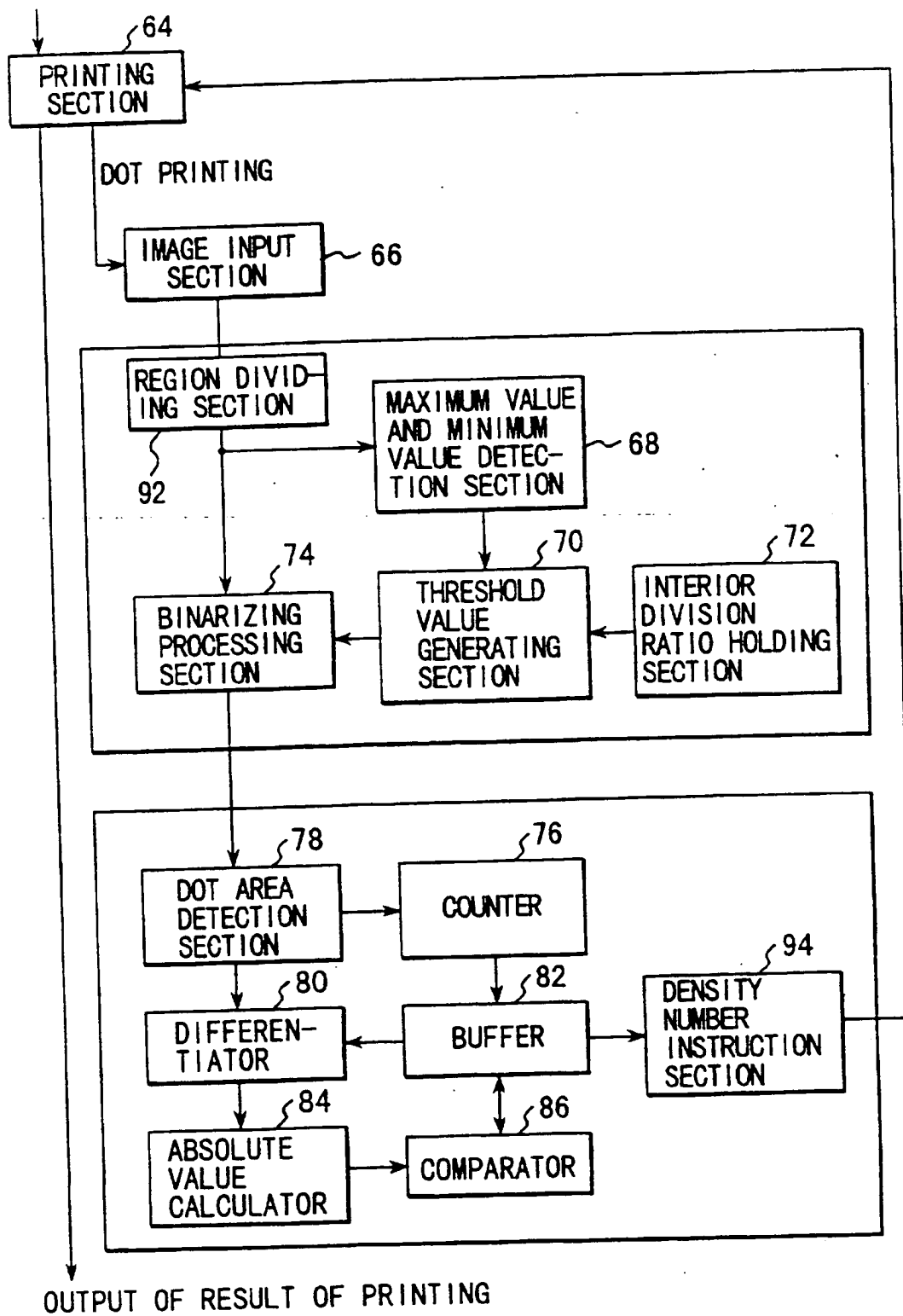


FIG. 79

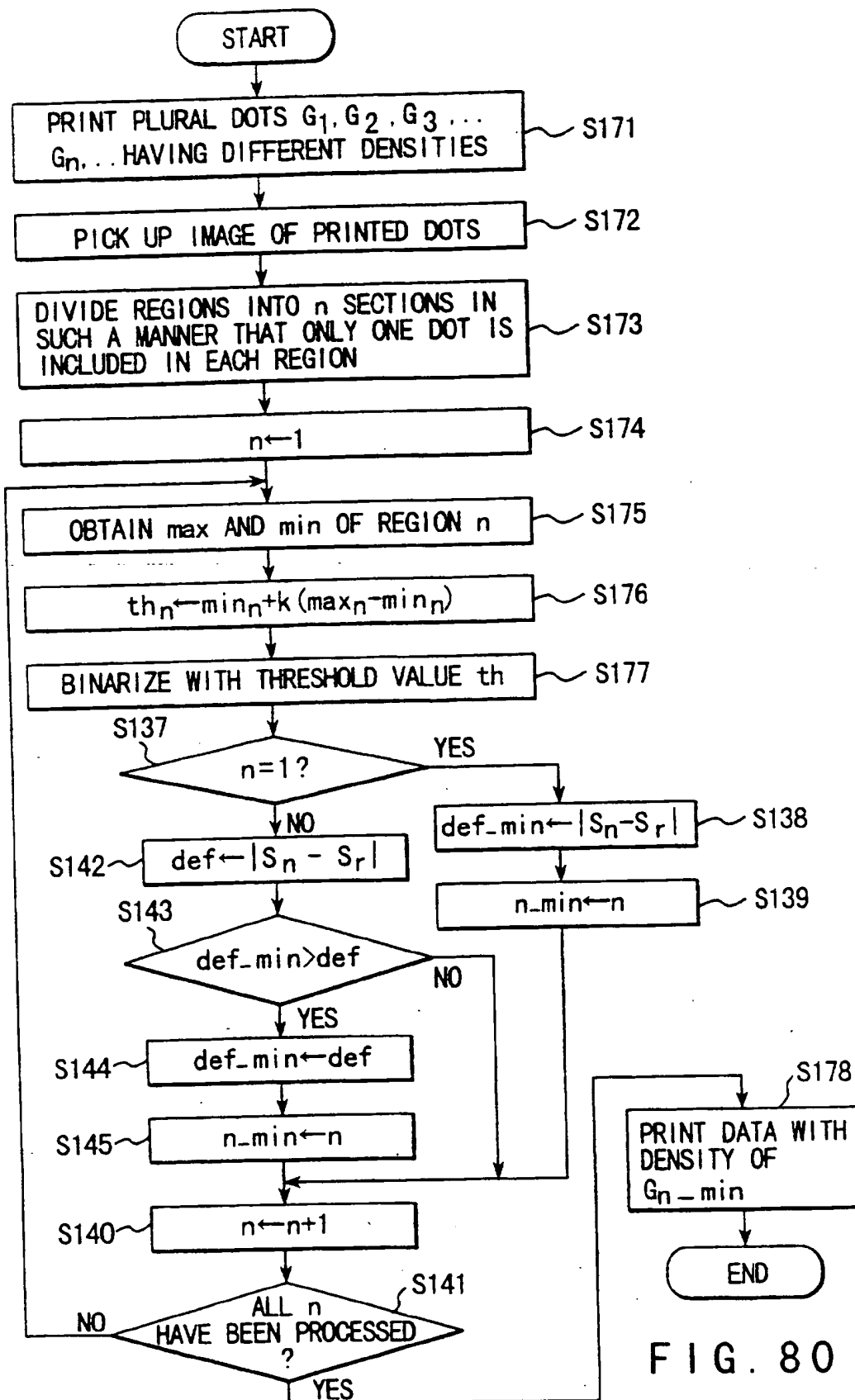


FIG. 80

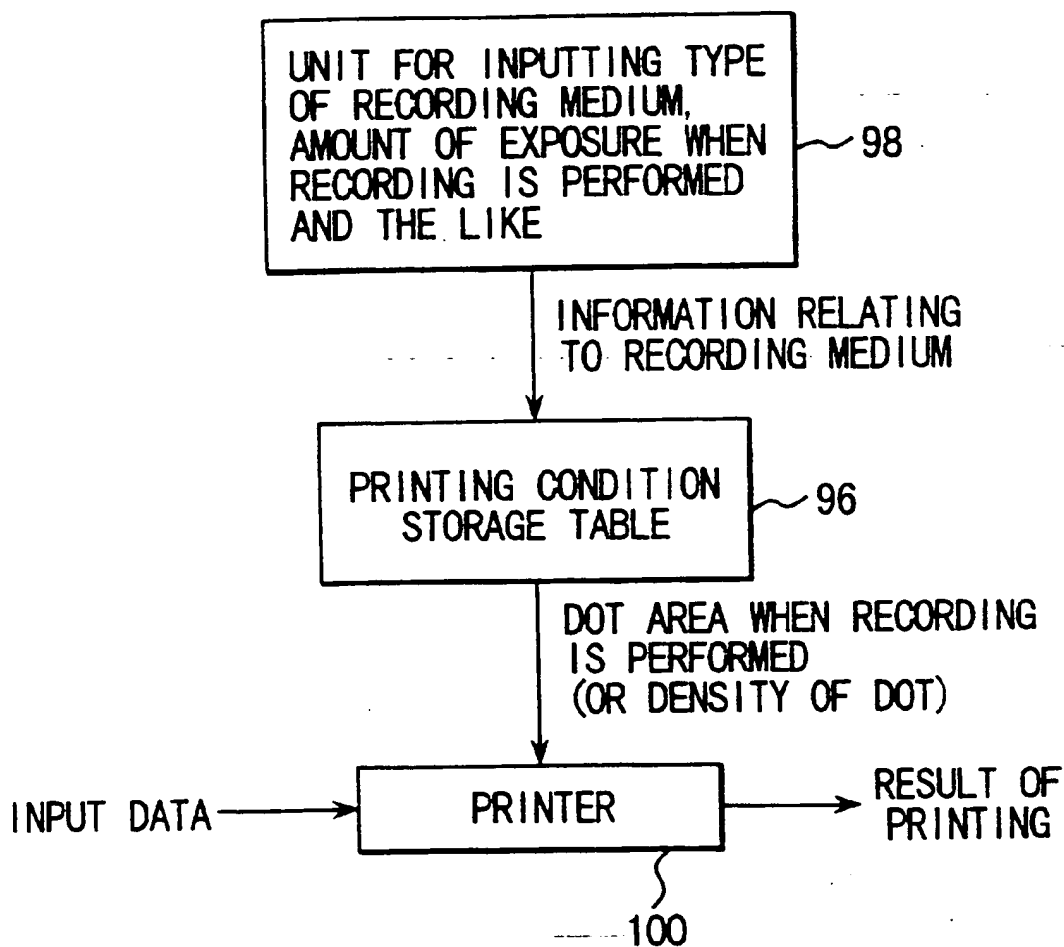


FIG. 81